Product / Brand co-creation methodology crossing Marketing, Design Thinking, Creativity and Management: IDEAS(R)EVOLUTION

Américo da Conceição Mateus

Tese apresentada à Universidade de Évora
para obtenção do Grau de Doutor em Gestão

ORIENTADORES : *Prof.ª Doutora Marta da Conceição Cruz Silvério*
Prof.º Doutor António João Coelho de Sousa

ÉVORA, ABRIL DE 2016

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DECLARAÇÃO RELATIVA ÀS CONDIÇÕES DE REPRODUÇÃO DA TESE

Nome
Américo da Conceição Mateus

Endereço electrónico
prof. americo.mateus@gmail.com

Telefone
213939600

Número do Bilhete de Identidade/Cartão de Cidadão
9532909

Título
Product / Brand co-creation model crossing Marketing, Design Thinking, Creativity and Management: IDEAS(R)EVOLUTION

Orientadores
Prof.ª Doutora Marta da Conceição Cruz Silvério
Prof.º Doutor António João Coelho de Sousa

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EPIGRAPH

"When we are not sure, we are alive."

Graham Greene

DEDICATION

To Mom & Dad whom always give me freedom to live my dreams and express my creativity...

To Susana, your love transforms the stones on my way in the magical soil where our imagination grows and strengthens itself, together... everything will happen.

To all my family that always believed in me.

ACKNOWLEDGEMENT

The pursuit of a doctoral dissertation is often thought of as an individual project.

In retrospective it is clear to me that this is true only to a certain extent. The process and the eventual outcome depend largely on the surrounding environment, and in this respect I have been very fortunate.

Over the past years I have enjoyed a daily work that has been intellectually challenging and rewarding. This would not have been the case without the contributions by people in my vicinity, specially my research project collegues Carlos Alves Rosa, Susana Leonor, Sofia Martins, Tiago Correia, Pieter Sprangers,Wolfgang Kremser and Luiz Salomão Ribas.

Creating a new methodology and model as a thesis goal requires an entrepreneurial orientation.

With the goal of innovating and creating new knowledge, the writer embarks on a journey with windy roads, risky decisions need to be taken. The path is long and only those with a proactive mindset will complete it.

I would like to thank all people who helped, motivated and inspired me on this path. I especially want to thank my supervisors, Marta Silvério e António Sousa.

I also would like to express my gratitude to IADE´s President Carlos Duarte, who always believed in me and in my academic skills.

This thesis would not have been possible without some very busy people that i have crossed along the road, i mean the really people that build this thesis, all stakeholders that participated in all IDEAS(R)EVOLUTION projects, workshops, conferences, seminars, creative labs, classes, masters students tuturing along these years. I learn alot with them!

Also i need to be thankfull to Karel de Grote Hoogschool and FH. Volarberg for all the assistance provided. I am grateful for the confidence they have shown in me and in my research project.

ABSTRACT

This thesis introduce a new innovation methodology called IDEAS(R)EVOLUTION that was developed according to an on-going experimental research project started in 2007. This new approach to innovation has initial based on Design thinking for innovation theory and practice.

The concept of design thinking for innovation has received much attention in recent years. This innovation approach has climbed from the design and designers knowledge field towards other knowledge areas, mainly business management and marketing. Human centered approach, radical collaboration, creativity and breakthrough thinking are the main founding principles of Design thinking that were adapted by those knowledge areas due to their assertively and fitness to the business context and market complexity evolution. Also Open innovation, User-centered innovation and later on Living Labs models emerge as answers to the market and consumers pressure and desire for new products, new services or new business models. Innovation became the principal business management focus and strategic orientation.

All this changes had an impact also in the marketing theory. It is possible now to have better strategies, communications plans and continuous dialogue systems with the target audience, incorporating their insights and promoting them to the main dissemination ambassadors of our innovations in the market.

Drawing upon data from five case studies, the empirical findings in this dissertation suggest that companies need to shift from Design thinking for innovation approach to an holistic, multidimensional and integrated innovation system. The innovation context it is complex, companies need deeper systems then the success formulas that “commercial “Design thinking for innovation “preaches”. They need to learn how to change their organization culture, how to empower their workforce and collaborators, how to incorporate external stakeholders in their innovation processes, hoe to measure and create key performance indicators throughout the innovation process to give them better decision making data, how to integrate meaning and purpose in their innovation philosophy. Finally they need to understand that the strategic innovation effort it is not a “one shot” story it is about creating a continuous flow of interaction and dialogue with their clients within a “value creation chain“ mindset.

Key words: Management, Open Innovation, Marketing 3.0, Creativity, Design Thinking, Living Labs, Co-creation

RESUMO

Metodologia de co-criação de um produto/marca cruzando Marketing, Design Thinking, Criativity and Management - IDEAS(R)EVOLUTION.

Esta dissertação apresenta uma nova metodologia de inovação chamada IDEAS(R)EVOLUTION, que foi desenvolvida segundo um projecto de investigação experimental contínuo que teve o seu início em 2007. Esta nova abordagem baseou-se, inicialmente, na teoria e na práctica do *Design thinking* para a inovação.

Actualmente o conceito do *Design Thinking* para a inovação "saiu" do dominio da area de conhecimento do *Design* e dos *Designers*, tendo despertado muito interesse noutras áreas como a Gestão e o Marketing. Uma abordagem centrada na Pessoa, a colaboração radical, a criatividade e o pensamento disruptivo são principios fundadores do movimento do *Design thinking* que têm sido adaptados por essas novas áreas de conhecimento devido assertividade e adaptabilidade ao contexto dos negócios e à evolução e complexidade do Mercado. Também os modelos de Inovação Aberta, a inovação centrada no utilizador e mais tarde os *Living Labs*, emergem como possiveis soluções para o Mercado e para a pressão e desejo dos consumidores para novos productos, serviços ou modelos de negócio. A inovação passou a ser o principal foco e orientação estratégica na Gestão.

Todas estas mudanças também tiveram impacto na teoria do Marketing. Hoje é possivel criar melhores estratégias, planos de comunicação e sistemas continuos de diálogo com o público alvo, incorporando os seus *insights* e promovendo os consumidores como embaixadores na disseminação da inovação das empresas no Mercado

Os resultados empiricos desta tese, construídos com a informação obtida nos cinco casos realizados, sugerem que as empresas precisam de se re-orientar do paradigma do *Design thinking* para a inovação, para um sistema de inovação mais holistico, multidimensional e integrado. O contexto da Inovação é complexo, por isso as empresas precisam de sistemas mais profundos e não apenas de "fórmulas comerciais" como o *Design thinking* para a inovação advoga. As Empresas precisam de aprender como mudar a sua cultura organizacional, como capacitar sua força de trabalho e colaboradores, como incorporar os públicos externos no processo de inovação, como medir o processo de inovação criando indicadores chave de performance e obter dados para um tomada de decisão mais informada, como integrar significado e propósito na sua filosofia de inovação. Por fim, precisam de perceber que uma estratégia de inovação não passa por ter "sucesso uma vez", mas sim por criar um fluxo contínuo de interação e diálogo com os seus clientes com uma mentalidade de "cadeia de criação de valor"

Pavras chave: Gestão, Inovação Aberta, Marketing 3.0, Criatividade, Design thinking, Living Labs, Co-criação

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GLOSSARY OF ABBREVIATION

BL- Bottom Left
BR- Bottom Right
C4Sapp- Citizens 4 Science Application
CEO- Chief Executive Officer
CI- Creative Intelligence
CQ- Creative Quotient
CMS- Consumption Management System
CoE- Center of Excellence
CSI- Corporate Social Innovation
CSR- Corporate Social Responsibility
CSI+C- Corporate Social Innovation + Citizenship/communityship
DIY- Do It Yourself
DNA- Deoxyribonucleic Acid
ED- Empathic Design
ESNs- Enterprise Social Networks
GDP- Gross Domestic Product
HBDI- Herrmann Brain Dominance Instrument
HCD- Human Centered Design
HCI- Human-Computer Interaction
ICT- Information and Communications Technology
IPGC- Innovation and Productivity Grand Challenge- EPSRC research project, grant Reference is EP/C534239/1, 2006- 2009
ISDM- Information System Design Methodology
T- Information Technology
KPI's- Key Performance Indicators
LL- Living Labs
M&DR-Marketing and Design for Radical Innovation
NPD- New Product Development
NPS- Net Promoter Score
NSMS- Number of Received SMS - EDP project
OECD- Organisation for Economic Co-operation and Development
OTA- Over the Air
P2P- Peer-to-Peer
PD- Participatory Design
POE- Paid, Owned, and Earned
PVQ- Portrait Values Questionnaire
R&D- Research and Development
ROI- Return Of Investment
RQw- Working Research Questions
RSS- Real Simple Syndication
SD- Service Dominant
S3C- Smart Consumers, Smart Costumer e Smart Citizen
SEI- Socio-Emotional Intelligence
SGC- Consumption Management System - Smart Platform EDP
SIDE - Social Identification/ Deindividuation
SME's- Small and Medium Enterprises
SMS- Short Message Service
SWOT- Strengths, Weaknesses, Oportunities and Threats
TEPs - Test and Experiment Platforms
TL- Top Left
TR- Top Right

TM- Trademark

UC- User Co-creation

UCC- User Created Content

UCD- User Co-creation Design

UDI- User Driven Innovation

UGX- User Group Experience

UNEP- United Nations Environmental Protection

URM- User Relationship management

UX - User Experience

VCE- Virtual Customer Environment

WOM- Word-of-mouth

WRS- Workshops

INTRODUCTION

Setting the Scene

"The need for transformation is, if anything, greater now than ever before. No matter where we look, we see problems that can be solved only through innovation: unaffordable or unavailable health care, billions of people trying to live on just a few dollars a day, energy usage that outpaces the planet's ability to support it, education systems that fail many students, companies whose traditional markets are disrupted by new technologies or demographic shifts.

These problems all have people at their heart. They require a human-centered, creative, iterative, and practical approach to finding the best ideas and ultimate solutions. Design thinking is just such an approach to innovation".

Tim Brown, Harvard Business Review, 2008

Around the early 2000s, the concept of design thinking emerged as an approach to innovation, and within a few years interest had grown exploded among managers striving to transform their business, and business schools wanting to better prepare their students for an increasingly complex and uncertain environment. Proponents of Design Thinking suggest that if firms could only learn to think and work more like designers, they would learn how to address problems differently, come up with breakthrough ideas, balance exploration and exploitation better, and transform their business by being more innovative and open.

In an environment of fierce competition and increasingly complex challenges, innovation is becoming widely acknowledged as a source of competitive advantage (Tushman and O'Reilly, 1996; O'Connor, 2008; Crossan and Appaydin, 2010; Govindarajan et al., 2011). Innovation is inherently complex and ambiguous (Eisenhardt and Tabrizi, 1995; Benner and Tushman, 2002; O'Connor, 2008). While many organizations recognize the importance of innovation, they find it hard to achieve (O'Connor, 2008). The difficulties of achieving breakthrough innovation in large, established firms are well documented (e.g. Leonard-Barton, 1992; Dougherty and Heller, 1994; Leifer et al., 2001; O'Connor and McDermott, 2004). Innovation efforts traditionally focus on how to exploit known technology in new markets or on how to develop new technology for established markets. There is a growing emphasis on how to develop more innovative offerings as well as more innovative ways of creating value with customer

or for the customer in a more open (Chesbrough, 2011) and co-creative (Ramaswamy et al, 2010) approach's.

In the search for alternative approaches to innovation, there is emerging interest in design in management debates, understood in a broader sense than being about form and function (Gemser and Leenders, 2001; Bruce and Bessant, 2002; Beckman and Barry, 2007; Verganti, 2008; Bessant and Maher, 2009; Ward et al., 2009; Filipetti, 2011; Seidel and Fixson, 2013). Design management scholars and practitioners point to the innovation potential of design, arguing that design as a discipline is suited to innovation because it represents a different logic - one that deals with complex and ambiguous matters (Bruce and Bessant, 2002; Borja de Mozota, 2010; von Stamm, 2010). Design is also being described as being human-centered and having a wider and more forward-looking approach to solving problems (Borja de Mozota, 2010; von Stamm, 2010; Hobday et al., 2012, Cruickshank and Evans, 2012. However, there is growing scholarly interest in the intersection between design and innovation. For example, 'Design-driven Innovation' explores design as an enabler for creating new meaning, as a new form of radical innovation (Verganti, 2008).

In line with the growing interest in design in an innovation context, the concept of Design thinking has emerged as a multidisciplinary, human-centered innovation approach inspired by the ways that designers think and work (Kelley and Littman, 2001; Brown, 2009; Martin, 2009; Kimbell, 2011; Johansson-Sköldberg et al., 2013). The core idea in Design thinking is that any discipline can take inspiration and learn from the way designers think and work, and apply this to their operations not only in innovation efforts but also in strategy, innovation and organizational renewal (e.g. Brown and Katz, 2011; Brown, 2009; Holloway, 2009).

To summarize, it has been established that innovation is a driver of organizational competitive advantage. It has also been argued that this new paradigm of "open innovation" and "co-creation" are a challenge for the organizations. Design thinking emerges as a management concept promising innovation; yet the concept is poorly understood, conceptualized and investigated in organizational settings and real life contexts. In particular, more research is needed on the potential role of Design thinking based models as an enabler of innovation culture and change driver inside different organizations, from business to territorial or social organizations.

Problem Statement

Has we will discuss on this thesis, of course such Design thinking "miracle cures" can be questioned, and the concept has already been accused of being the latest management fad, a "flower of

the day". Nevertheless, an increasing number of firms are implementing Design thinking in various sectors, industries and organizations. Mainly one classical approach and model of Design thinking - the IDEO design model supported by D-School from Stanford University - has been used. Yet, to date there is very little empirical research on Design thinking impacts in organizational settings, and in particular research investigating Design Thinking in relation to innovation in different types of organizations. This thesis seeks to fill this gap, by exploring Design Thinking as: (a) the role of design thinking to the organizations management and structures; (b) as a innovation system for all organizations that stills needs to further develop new operational models to better fit the different challenges from different organizations; (c) as a potential enabler of innovation culture in the context of all professional and non-profit organizations and (c) as a co-creative process that allows organizations to involve internal and external stakeholders in the innovation dynamics.

Main research question

It is possible, given today's complexity, innovation processes and management paradigm, to "deeper" develop a design thinking based model in a more systemic, more holistic and multidimensional level? Thus becoming a facilitator and implementation system that support and enables the manager's quest for change and innovation driven companies? Can this new model be centered in an active participatory and co-creation orientation with internal and external stakeholders? Would such model generate a high involvement and engagement with consumers, citizens and organizations?

Researcher motivation

The main motivations of the researcher are:

Academic – The researcher wants to:

- The researcher sought to follow up the results of his master's thesis.
- As a member/collaborator of the research unit of its university, he created in 2007 a research group that aimed to transform the insights obtained on his master's thesis related to innovation models and systems into a new model of innovation based on design thinking.
- Has always been his purpose the deepening of this initial model trought a applied research approach. Therefore he designed a development strategy focused his doctoral thesis research in parallel action to also develop research capacity and publication of his research group in IADE – creative university research unit - UNIDCOM.

- The researcher also aimed to create along with the development of the new model IDEAS(R)EVOLUTION a international research network to validate and disseminate international the model.
- The researcher and a international lecturing career in more then 5 countries. The development and validation on his own model, give´s him important differentiation values and the real life context cases to use on his classes and teaching methods.
    - Professionally – The research aims to:
- The researcher has over 20 years of professional career in design, branding and marketing. It has been witnessing will dire need of change processes, working models and forms of relationship of companies with agencies and essentially with the market and consumers.
- Open and participatory models are a breath of fresh air in the form of creation of agencies and design professionals and brands. The investigator has been driving force in Portugal these models of relationship and so it is motivating to create your own template and publish it.
- The fact that it was one of the first professionals to design and marketing to give expression to the innovative capacity of design and marketing for organizations motivates him to build and validate a model that is more aggregator and has greater impact on the strategic orientation of companies for innovation and for change.

Outline of the Thesis

This thesis is the result of the UNIDCOM/IADE research project started by the researcher in 2007, after concluding his master thesis around the subject of radical innovation. The research project had as premise the experimental development of an innovation methodology. Due to the previous research performed, the starting point for building the new methodology was the Design Thinking for innovation processes.

Since the beginning, the research framework has to achieve a higher focus on organizational Management, Leadership and innovation and creative organizational Culture, targeting the improvement of the innovation systems of those organizations, also crossing with marketing theories and practices.

Other background knowledge areas to support the methodology development were co-creation, branding and creativity. The research project was developed from the beginning based in the following logics:

- Experimental, aiming the methodological validation and development through an evolutionary and ongoing implementation;

- Design Thinking based methodology that keep searching for new territories to test this type of innovation;
- Research project based, realized by the researcher and collaborators directly with protocoled organizations;
- The utilization of intermediary findings, in orientation of Master Thesis for scientific validation;
- The methodology utilization, for the development of joint projects between research centers from other European universities;
- After seven years it was possible to assemble all the information gathered that includes;
- Different stages of bibliographic review with special focus from 2009/2010 with the beginning of PhD attendance;
- Results of eleven projects developed by the researcher and collaborators of IDEAS(R)EVOLUTION the research project;
- Results of eighteen master thesis oriented and co-oriented by the researcher;
- The methodology acceptance by the academic and scientific community with fifteen published articles and international conferences presentations.

Methodology statement

The thesis was developed, initially, according to an Inductive-Empirical research study frame (Campbell & Stanley, 1963), through an experimental research design and a mixed of method research strategy, such as qualitative research, action research and model building methods. Given the nature of research in action, were thought a set of initial questions, and the research design allowed from the beginning that new questions could be placed placed new issues (working research questions) in each of the cases performed in the field. These working research questions were then analyzed by new research and literature review and new methods have also been introduced to the initial design research, such as qualitative and quantitative methods, living labs, for example.

Thesis structure

The following thesis is structured in two parts: (a) the first theoretical part that is divided in four chapters and (b) the second empirical part composed in total by two chapters.

The first chapter presents the thesis adopted methods, approach, design and instruments.

The second chapter it's about cultural changes in organizations, focused on innovation effort, and supported by three main knowledge areas - Management, Innovation and Creativity. The themes addressed in this chapter related with Management knowledge area are, the radical management as a

paradigm shift in the management practices and leadership, focused on innovation culture and organizational dynamics.

The third chapter it is about strategic focus it crosses the co-creation, design thinking and the marketing knowledge areas and the creation of better ideas and insights. The main addressed areas are the co-creation as a concept, in the way that organizations need to incorporate the co-creative logics in their organizational structures also presenting models and tools, the co-creation benefits to innovation and to the company itself.

The forth chapter has its focus on operational aspects, a deep bibliographic review about the Living Labs and the most recent methodologies that support and help the innovation effort and increase the users motivation. It will present the concept, methodology and the principles about the Living Labs, with a historical and evincive data that supports the quick evolution and implementation in Europe.

The chapter five it is the empirical chapter. The four pre-exploratory case, Alvito, Tradição Engraxadores, Oeste Ativo and Caldas da Rainha are presented. After, we present methodological evaluative stage of IDEAS(R)EVOLUTION, after the retrieved analysis of the four case studies. Follows the developed quasi-experimental case study with EDP – Inovcity Évora. The chapter finishs with the IDEAS(R)EVOLUTION methodology conceptualization after the results of the EDP case study and the results from Inovcity from the routine development areas as culture, community and creativity. It is also presented the results from the co-creative workshops with a group of academic experts from both partner university - Karel de Grote-hogeschool and Fachhochschule Vorarlberg University of Applied Sciences – finalizing with the presentation of the evolution of the collaborative platform, which is an integrated part of the methodology.

The chapter six will present the main thesis conclusions and the future research developments.

1 CHAPTER- METHODOLOGY

Action research methodology relates to the production of methods and instruments resulting from the investigator's intervention in the field, usually at the request of organizations. It is also characterized by the use of direct observation, interviews and document analysis. It differs from others by the fact that the investigator access information as an intervener in the organization. Their attitude is transforming (Juveux et al, 1997).

In this chapter we wil present the research purpose, questions, methods, design and instruments adapted for the research development. To better understand the methodological options taken, we also present the existing pre-model that was the starting point of the action research on the field.

1.1 Objectives and questions

Given the thesis presented problem, we define the objectives and research questions that frame this dissertation.

Objectives

Thus the purpose of the thesis is:

To Create a methodology: Holistic, integrated, based on design thinking, co-creation, a quali-quanti (qualitative and quantitative) mixed methods, a metric system IT enabled, which constitutes a systemic approach that helps to create, develop and promote a creative culture, collaborative philosophy and experimental context to assist organization's management in innovation orientation and focus.

In detail, to create a methodology that helps to "simplify the complexity" that is today the innovating effort, with the development of the full phases of an innovation system methodology: Innovation generation, innovation management and innovation dissemination, but focused/ centered on the "person", the appreciation of the creative value and in the innovation competence of individuals, teams and communities, specifically:

- To reinforce the principle objective of the IDEAS(R)EVOLUTION procedure, consequently to create an inventive society, insights and advancement in the regions, companies and individuals.
- To strengthen the strategic role of Design thinking and practice in business organizations, translated into the ability to think and create systems (system thinking), working in

collaboration and multidisciplinary approach, supported by creativity tools and dynamic group techniques.

- Consumers today are predisposed to participate in the innovation processes of companies, if the approach and motivation of co-creation is designed with the right approach, being authenticity and transparency of the process, the truth of co-creating the statements made by the organization/company, mainly the compromise of the organization to validate and implement the stakeholders' ideas arise from the co-creation and design thinking process.
- Contribute to the creation of a methodological approach to the set of Design Thinking for Innovation metric system, thus validating the methodology itself, its processes and integration with the business management knowledge area.

Research Questions

The initial research questions formulated for this thesis are:

- Is it possible to improve design thinking for innovation approach by introducing new knowledge areas, more scientific based methods, a metrics system and especially by using the new technologies to enable the full process and implementation?
- Is it possible to create a continuous innovative flow within all organizations, combining co-creation, creativity and design? And if so is it more effective if it promotes a creative culture inside the organizations where chaos, collaboration, multidisciplinary is nourished by all levels of management?
- Can Design practice and thinking when associated with creative intelligence techniques become a better systematic approach to Innovation? Being an innovation system itself, does it enable a more effective knowledge transfer for the organization?
- Can a design thinking, co-creation and creativity based innovation system, when implemented, build an internal network of "creativity and innovation energizers" within the organization as well as, via the co-creation process build a deeper external committed community around the brand?
- Can companies and organizations today survive without the ability to listen, co-create and engage with their consumers, in particular when its management focus is the innovation effort?

- Does this innovation approach build engagement between internal and external stakeholders involved in this process? Does it have an impact on the ideas and innovations generated?
- Can we simplify complexity? Mainly it is possible to simplify the innovation systems and approach inside organizations? It can be done by unleashing the organizational potential, understand the internal and external complexity and respond to it by simply adding value?
- Can Internet based collaborative and co-creation driven platforms and social software empower open and design thinking based innovation? And mobile app? Can they be useful bidirectional, meaning, not only regarding the gathering of ideas and shared information, but also in the operational stages vital to of the overall process such as a real-time system for the selection, recruitment, sharing and interaction of consumers, allowing the incorporation of anthropological observation and ethnographic ideation into the research, essay and development process?

1.2 Pre-conceptual model IDEAS(R)EVOLUTION

The research methodology of this thesis has taken into account the existence of a pre-model generated from the researcher master's thesis. It is exactly this initial model that the researcher proposes to validate, develop and evolve through the experimental empirical approach, action research, through four real cases in real life context. Another premise of the methodology design is that, being a action research method, new tools or even operational models can be created and tested between the implementation of each case. Thus, new research questions will be found between each case and these new issues (working research questions) should be answered with a new focused literature review.

As stated, the first attempt to create a new model and innovation system was based on the theories and practices of design thinking, co-creation and branding.

The role of the intervention of Marketing and Design in business is, and should continue to be strategic, since it must be present in the multi-disciplinary knowledge teams that try to "force" a radical innovation in business (O'Connor et al, 2005; Leifer et al, 2000; Olofsson, 2003;Michalski, 2004) . The integration of knowledge of consumers at all levels: physical, social and cognitive, in a perspective of "user centered design" (Vinyets, 2003, Zurlo et al, 2002; Manzini, 2002) and the ability to read socio-technical design in the development of new projects (Verganti et al, 2004; Cova, 2002) will, together with other complementary expertise such as marketing and production engineering, the correct way of finding new ways for businesses and develop innovative products or services that may be factors of differentiation

and success (Bruce & Bessant, 2002; Kotler, 2003; Khan, 2001). On the other hand the recent consumer approach as an active player in the strategic development (Prahalad et al, 2004), a recovery scenario creating new interface experience between the consumer and the company (Prahalad et al, 2004 and Peters, 2003, De Bes & Kotler, 2003), reinforces the idea of the Marketing and Design together are, in fact, a tool whose skills (skills or soft skills) are strategic to today's business reality. The conceptual model is proposed enhances transversally of the two tools connected to support the radical innovation strategies (Garcia & Calantone, 2002; Veryzer, 2005) , throughout the cycle, ie, from the search phase and definition of strategic development to its operation (deployment , marketing and monitoring). M&DR model further illustrates the marketing and design content, translated into primary and secondary factors in each step. Portrays all this through three effects - "attractor", "aggregator" and "diffuser" - that revolve around one of the competitive values currently more important for companies (and also for consumers), as are the Creativity and Ideas (MIntzberg, 2004; Sotomaa, 2005; Hamel, 2004).

This effort had its genesis in the model M&DR - Interactions between Marketing and Design for Innovation Radical which was developed by the researcher and published in his master's thesis (Mateus, 2005). Itself, this model was already the conclusion of a research period and focus that the researcher was developing since the beginning of 2000 relating to its activity faculty of Design and Marketing about the role of Design and the Design methodologies for companies focused on the innovation effort.

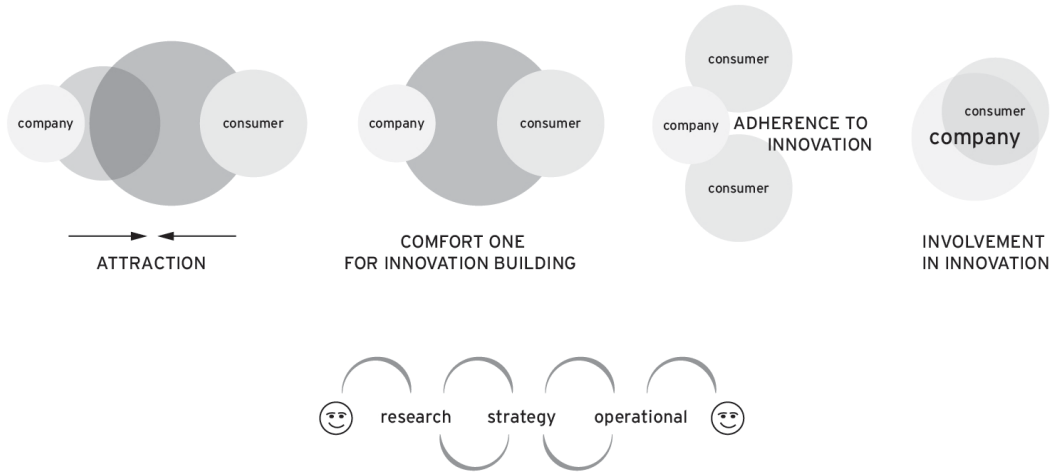
This model promoted the competences that marketing and design have, namely their cross and integrative role for companies whose strategic orientation is radical innovation.

This transversability was represented in the proposed conceptual model (Model M&DR) and had the following three aspects:

- Research (knowledge of consumers and markets);
- Strategy (definition and strategic orientation);
- Operational (development and implementation).

In each of these aspects or phases it is important to realize the role and objectives of the intervention of the Marketing and Design tools integrated. The following figure illustrates this:

Figure 1 - M&DR conceptual innovation Model



Source: Mateus (2005)

The Model M&DR, further illustrated the content of marketing and design translated into primary and secondary factors for each stage. Portraying all this through four effects that revolve around one of the currently most important competitive values for companies (and also consumers), as are Creativity and Ideas (Mateus, 2005), namely:

- "Attractor" - The model advocate the creation of a zone of attraction for innovation between the company and the consumer;
- "Aggregator" - Construction of innovation zone between business and consumers;
- "Diffuser" - Elevates consumers as the main actors in the dissemination of innovation;
- "Viewer" - Engage consumers in the companies' "dream" and the vision.

Between 2006 and 2007 an intensive research and literature review was conducted that led to the creation of the first draft of the new methodology. The “starting point” was the principles of design thinking known by IDEO design action and the Stanford D-School, but framed our own new assumptions:

- CO-CREATION - The whole process / system innovation design thinking done by an organization should first enhance the existing internal knowledge through the recruitment of internal and external stakeholders with a strong connection to the organization, ie, should be done with people's own organization and not an expert team hired as case studies were previously known. The methodology to create should then be thought of as structural and systemic guaranteeing a facilitator and a correct sequence of steps that it takes the organization to generate innovation.
- BRANDING - The aim was to bring the drivers and models of brand building for the processes and systems of innovation by design thinking in order to generate better final

results of innovative outputs to m.arket. Also the principle of co-creation with participation of external stakeholders meant that they were the first "ambassadors" of innovation through the effect of Word-of-mouth edo Goodwill would be one of the expectable results of participation of people outside the organization.

- CREATIVITY - It was the initial aim of the creation of this new approach to the processes of evolution or design thinking to existing innovation that the bases of the most creative techniques were essentially the preparation of participant's stakeholders for such an innovation process based on their ability and motivation to generate disruptive ideas.
- KNOWLEDGE TRANSFER - The entire methodology be developed by academic root should be considered a philosophy of knowledge transfer organizations. Our goal was to teach the organization to "do" so that after this process and the innovation system became still within the organization.

According to the assumptions set out above, the researcher was also purposed to think of new spaces for the introduction of innovative methodologies based on design thinking now taking into account the four principles of the developing methodology. Then the following sectors were set to start the pre-experimental projects:

- **Territories** - We believe that innovation processes perform in co-creation in territories, regions or cities are for example would be exciting challenges and perfectly adjusted to our concepts of departure. In territories defining stakeholders (all those interested in the organization) is very natural and varied are its lifeblood, its residents, visitors, business owners, agency management, all share a strong sense of belonging, hold a lot of information about the their stories, experiences, problems, distinguishing factors, etc. Also the fact that an intervention with the methodology developed would be important for the processes of governance of the territory.
- **Nonprofit and Social Sector** - Beyond the emergence of research groups at the international level as Desis, developed by Professor Enzio Manzini, Polytechnic of Milan, on the application of the principles of design thinking in the third sector where the main role these methodologies is encouraging social entrepreneurship, we consider that some public bodies and institutions needed to change their processes to more co-creation, participatory and focused on innovation processes. Essentially would be valid for modernization and creation of new products, services or business models contribution.
- **Creative agencies** - For the experience of the researcher another sector where the methodology cold be tested, validated and at the same time constitute an important contribution to the sector, would be the creative agencies (advertising, design,

communication, etc). Why not open the creative process of co-participation of consumers?

1.2.1 From BRANDS(R)EVOLUTION to IDEAS(R)EVOLUTION

The initial stage of IDEAS(R)EVOLUTION methodology, was designated Brands[R]evolution and aimed to develop a branding system supported in the organizational DNA. The DNA state differs from companies' mission and vision, because it must contain the essence (grass roots values) and must involve all stakeholders and not just the internal public perspective. The consumer must perceive it as well as the partners, suppliers and all parts interested must be involved with the products, the visual identity, the packaging and communication (Mateus & Gomez, 2010).

The initial model was inspired on the new paradigms of management as a way to generate inside companies a creative culture to be more competitive in the market and collaborative in its internal organization (Mateus, 2005). The researcher developed a tool for the systemic search of "the next Big Think", adapted to teamwork for the solution of problems. Thus, this approach becomes a tangible style of guided management for people acting on collaborative mindsets, preparing, motivating and adjusting for creative work, team dynamics and collaborative creative processes (Mateus & Sousa, 2009).

This model also prepares the environment for a creative processes and work flow, based on Design Thinking (Brown, 2008), so that the organization can be focused in the search of innovation. Brands (R) evolution is must be suitable for all contexts in constant change as a source of value co-creation considering all stakeholders (internal and external) processes and creative work, sharing experiences and participating on the conception of the product/ service or in its communication (Leadbeater, 2006).

This model garanties that costumer participation with companies must happen in the beginning of the creative process, creating the conditions for the generation of a tribe or innovation community.

The BRANDS(R)EVOLUTION model validated a set of tools and a modelization that work in "daily pre-conditions", acting on mental aspects as attitude, motivation, knowledge, creative techniques and appealing to a ethnographic and participative base. In this way a creative culture could be generated inside the organizational structure that in turn will generate the necessary dynamics and radical ideas for its growth and sustainability. Creativity is therefore being recognized as key element for economic growth and social transformation, as well as future global positing shaped by communities that lure creative people by emphasizing the 3 T's: Technology, Talent and Tolerance (Florida, 2002). The spirit of BRANDS(R)EVOLUTION was to put people and communities working together in creative environments.

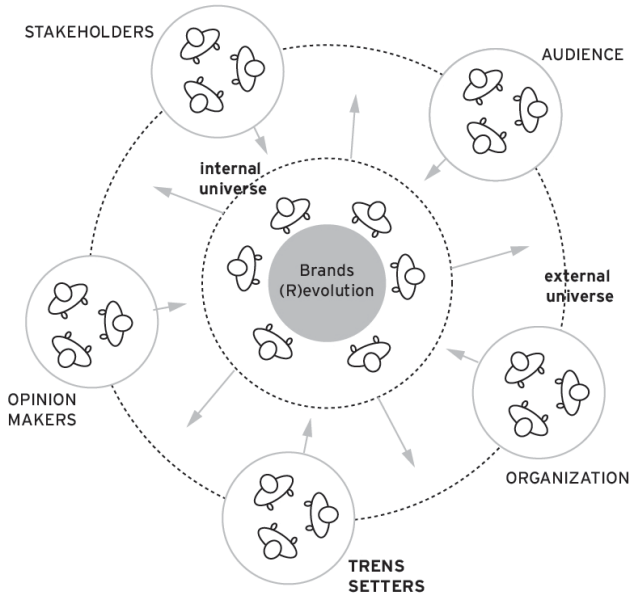
It was conceived as a strategic model for brand building and for creative work development. Its main objective was to create and maintain a cultural flow within the companies through a set of workshops

to carry through an initial diagnosis, personalized conception of a training program, creative techniques and processes training sessions, company implementation and conception of an auto-evaluation tool for the application of the model.

BRANDS(R)EVOLUTION principles

Co-creation - This Methodology toke into account: (a) the internal universe of the organization, meaning the collaborators from all different departments, and (b) the external universe, meaning the stakeholders, the target customers, the partners, the opinion makers and the trend setters (see figure 2). For a better brand creation, both universes representatives should be present in the creative processes:

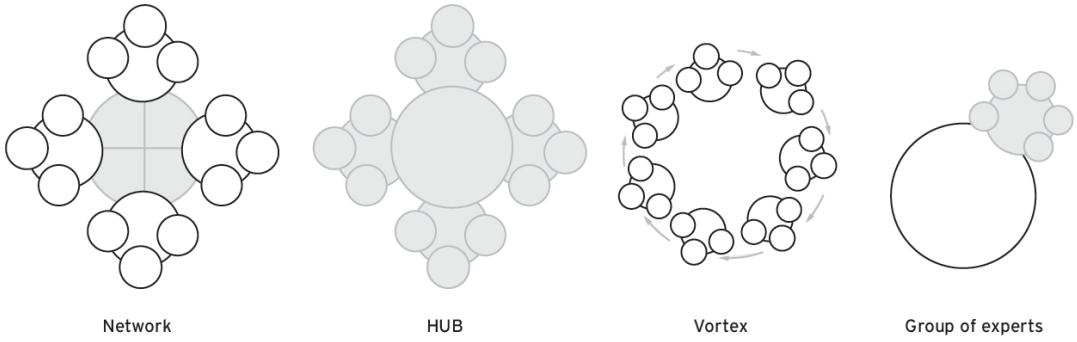
Figure 2 - BRANDS(R)EVOLUTION Initial Principles



Source: Mateus et al (2009)

The creative research for the brand building strategy, included an organizational creative generation tool, internal culture guidelines for the innovation systemic source and four existing pre-models of organizational structure (Mateus, 2005) for the BRANDS(R)EVOLUTION implementation (see figure 3). We proposed that creativity needed one of this four models to florish, meaning, to work in connected networks, having a centralizaled hub to connect all creativity inputs, to work in a community vortex or having a special dedicated group for creativity and innovation.

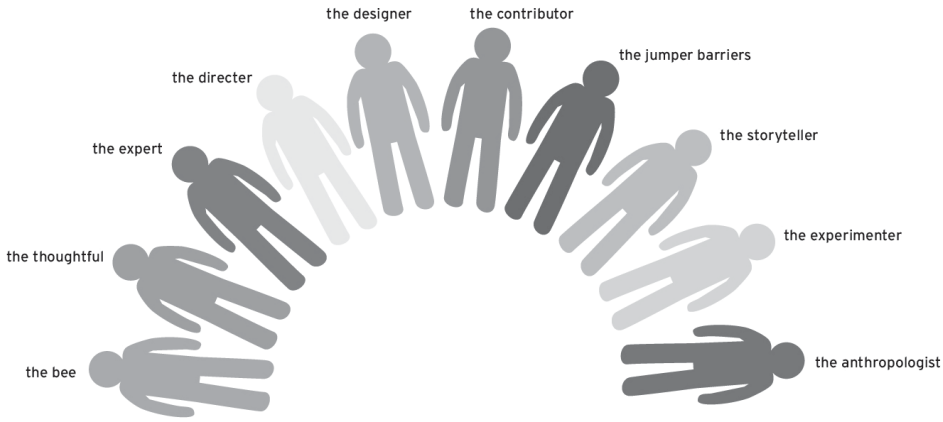
Figure 3 - Pre-models of Organizational Structures



Source: Mateus et al (2009)

Complementarily to have defined the types of space and the organizational design was essential to understand what kind of collaborators profile of we needed in a working group focused on the creative processes and innovation. We supported the model based on Kelly (2009) 10 faces of innovation (see figure 4).

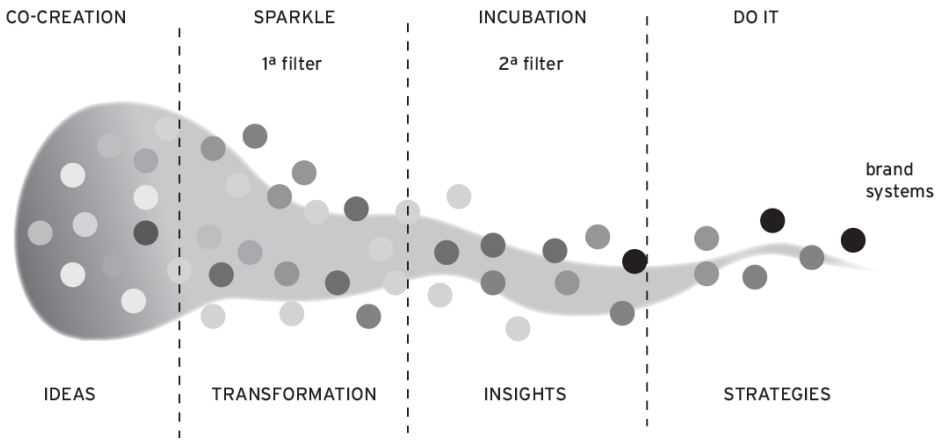
Figure 4 - Ten Faces of Innovation



Source: Adapted from Kelley (2007)

The BRANDS(R)EVOLUTION model had also a tool of generation and management of the ideas cycle in co-creation until its implementation in the Market, passing for the processes of filter and selection, and a tool of generation and management of ideas (see figure 5). The Model preented 4 sequential stages: (1) Co-creation – Open system to receive ideas from all stakeholders; (2) Sparkle – Ideas filter and transformation into new ideas; (3) Incubation – transforming ideas in innovative insights for the brand and (4) Do it – Creating the final brand strategies and systems to go to the market.

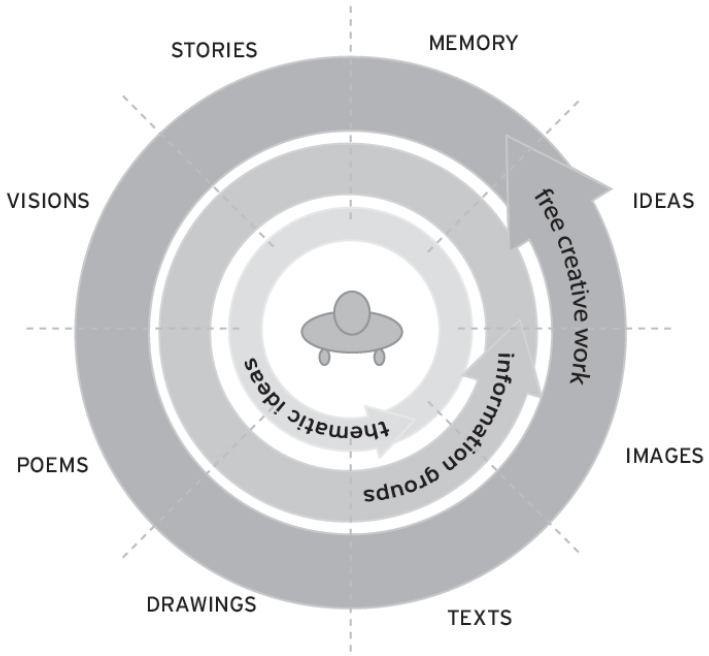
Figure 5 - Ideas Cycle - Brands(r)evolution



Source: Mateus et al (2009)

The brands(r)evolution model also tried to capted the individual motivational factors that allow the stakeholders to express freely their ideas, experiences, stories, visions and context and during the group dynamics workshops transform them into ideas themes and clusters (see figure 6).

Figure 6 - Motivational Factors



Source: Adapted by Mateus et al (2009)

This initial model approach, was the beginning of IDEAS(R)EVOLUTION methodology, and was framed by seven sequential workshops:

- Evaluation – diagnosis phase;
- Creative Minds - creation of an environment of amusement and "playfulness;

- Creative Training - training of creative techniques;
- Creative Branding - construction of the DNA and identity of the brand;
- Creative emerges - phase of incubation with the application of the science and the processes of design;
- Creative culture - the implementation of the Creative Lab;
- Creative Results - evaluation of results.

BRANDS(R)EVOLUTION was supported and focused on scientific research development, knowledge transference, creativity processes, creative techniques and the science of design, applied in organizational and business context

It was also an alternative to the traditional processes of brand building, bringing an innovative process of participation of stakeholders to innovation and creative dynamics. The human element was crucial to create brands with greater potential of being perceived and valued by its target audience and due to the participative principle more efficient to build brand communities or brand fans networks.

The BRANDS(R)EVOLUTION was an organizational model for creative culture and a tool of generation and management of the ideas cycle. It was conceived with two structuring principles (Mateus et al, 2010):

- "To bring all the people for the process and the creative work" within a participative research and share methodology. Meaning to place the different interested actors and agents to interact and to contribute with ideas, opinions, and experiences since the beginning of the creative process until its participation in the filter processes and selection of the ideas with innovative potential.
- The capacity of ethnographic research as main source of information for the creativity that contributes and interacts with information on the target audience.

In a first phase we develop the methodology Brands(R)evolution for application in three main areas (Mateus et al, 2009):

- The LAND(R)EVOLUTION - focused on research and creative processes in territorial brands with a generation and management of the cycle for ideas. An organizational model that was the base for application in lands, urban cities, regions, networks, that look in the creativity the factors of innovation and development of its territories acting on the people through its involvement of the alive forces in the creative processes, implementing a creative systems, generate information and ideas with potential of application in different functional areas, cultural, social.

- IDEAS(R)EVOLUTION - for organizations who believe that the ideas and the creativity, when approached on a systemic form, force the change, development and differentiation. The organizational model and management tool were thought to create a creative culture within companies, in environmental terms with all collaborators allowing free space and openness, with the objective to improve the offer through the capacity to innovate and create value with the public and all the involved agents in its chain of value.
- The AD(R)EVOLUTION - our aim was to democratize creativity. "The creative process cannot be exclusive of Ad agencies but must be shared with brand owner, the agency and its publics" (Mateus et al, 2009). The model also promotes the participation and sharing with consumers, the generation and construction of the brand creative idea and its plan of communication and promotion. It transfers a creative culture and management tool for the ideas cycle, in co-creation of value with all involved and interested people. Such way has impact on the capacity of information attainment, in the optimization of resources and costs of the creativity, in the motivation and performance of the team responsible for the communication of brands.

In 2009 the researcher took the decision to evolute the model from a brand strategy focus to a full innovation model. The next step of IDEAS(R)EVOLUTION methodology was based, due to the constant bibliographical review, in several concepts as: no Boundaries for Organizations, no Emotional Boundaries, transdisciplinarity. This evolution was presented in several conferences where the author scientific articles were published, such as CUMULUS Genk in 2010 (Mateus et al, 2010).

At is starting point, the IDEAS(R)EVOLUTION was a methodological approach that links creative thinking and tools within organizational structures. Was a research project that integrates several innovative and creative practices, breaks boundaries and contributes to more flexible and competitive organizations.

The IDEAS(R)EVOLUTION methodology sustains the participation of those involved in the process and helps promote the co-creation of value:

- It proposes various company stakeholders - internal and external - involved in the creative processes since the beginning, where they share the experiences and participate in the product, service or communication design process.
- On the emotional and tribal side approach argues that the managers, consumers, employees, technical and commercial users' and partners' should participate since the beginning of the creative process, creating the necessary conditions for the generation of a participatory community.

- The 'belonging feeling' inspires members to become the main creative, innovative and dynamic actors of the company, territory or institution, focused on the participation of all stakeholders in ideas generation as well as transformation of all participants as co-authors.

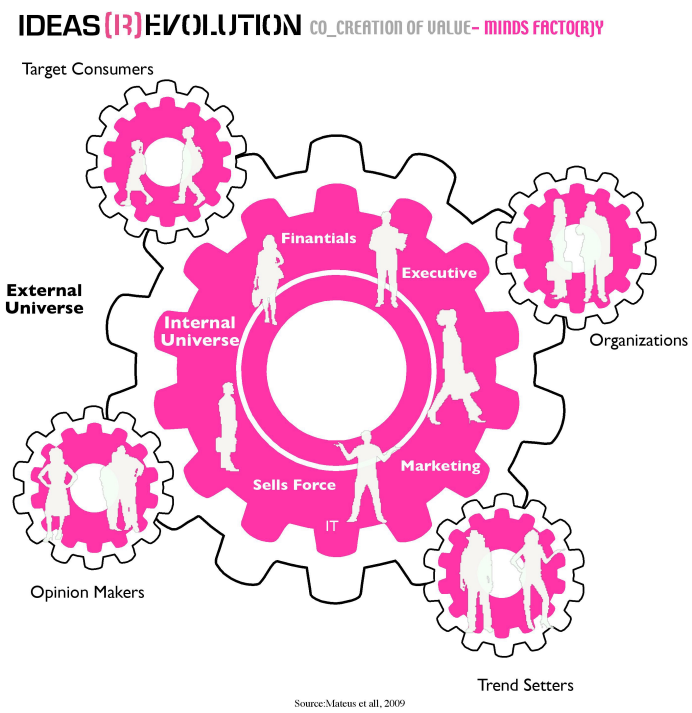
All the process started with an initial diagnosis internally and externally supported by an external consultant free of preconceptions that may distort the process, using several techniques and design tools applied, enabling to define strategies that will characterize the organization's culture.

The diagnosis set the path to users by choosing consultants with the tools and techniques that can be applied to process with a method like observation, ethnography, participatory invitation, the registration of the project, among other must be applied consistently in order to build a creative environment that will work as the project kick-off.

The IDEAS(R)EVOLUTION was structured according to four perspectives that define scientific integrity and consistency as follows:

A- The Building Blocks - Minds Facto(R)y – The knowledge areas that lie behind the methodology and underpin observation and research work. Should be put into action and defines what type of action should be applied, for example, users (persons and/or organizations), individual motivation, group dynamics, playfulness, organizational spaces (see figure 7). The Minds Facto(r)y was conceived to define the who's, the where's and the what's regarding the preparation of the innovation project.

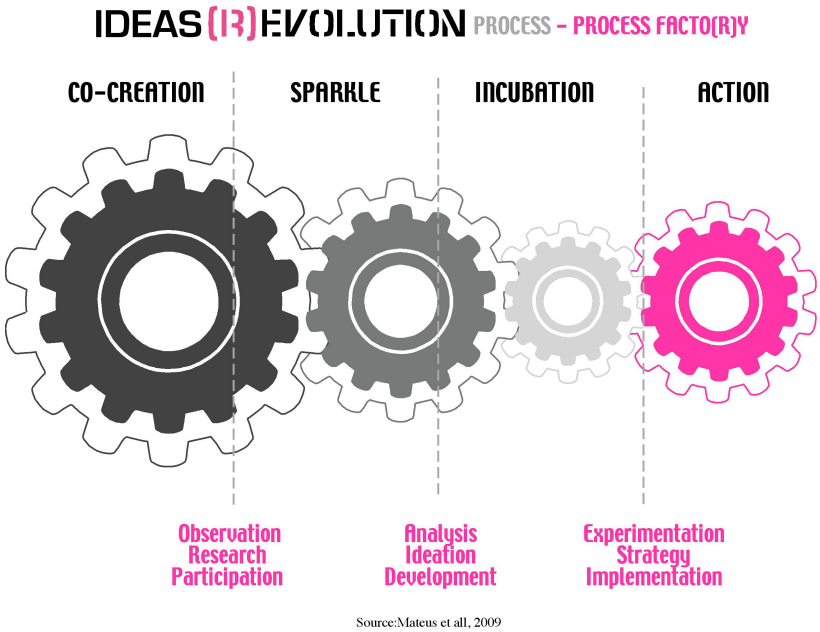
Figure 7 - Minds Facto(r)y



Source: Mateus et al (2010)

B- The Process – Process Facto(R)y – The envisioning (in a divergence and convergence sequence) of ideas and the process involves four steps: co-creation, sparkle, incubation and action (see figure 8). Also this process blueprint defines the phases and sequence of work: Strating with observation, research and participation, trought analysis, ideation and development and finishing with experimentation strategy and implementation.

Figure 8 - Process Facto(r)y



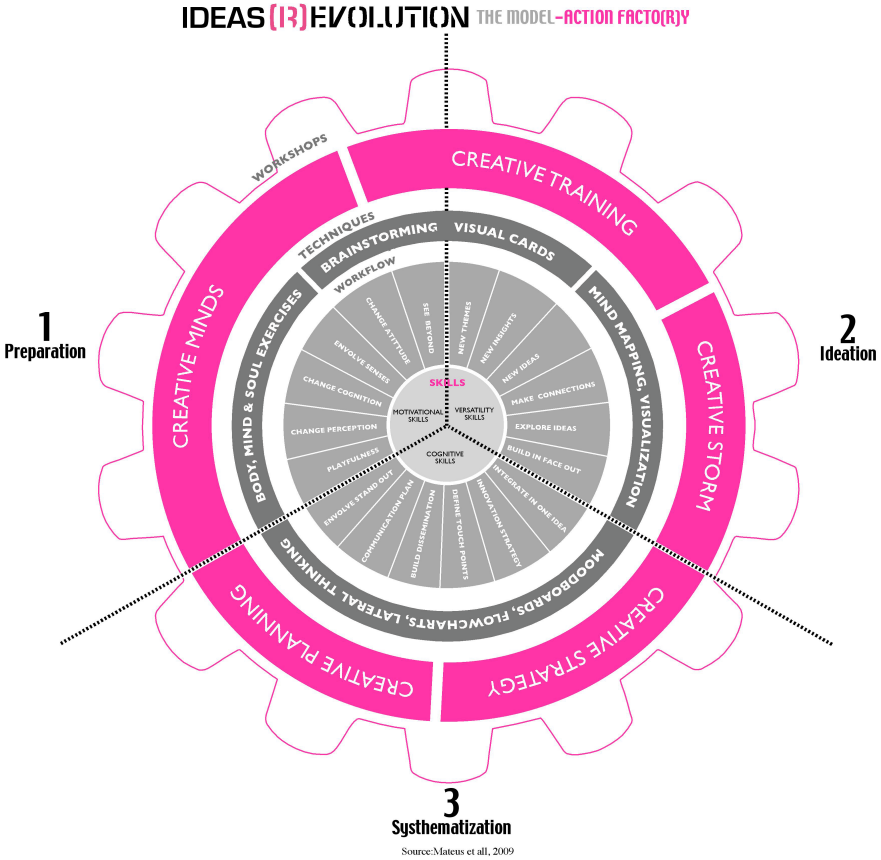
Source: Mateus et al (2010)

C- The Model – Action Facto(R)y – Consists in a set of workshops (Taylor Made according to the diagnosis) that deal with the creative action. Divided into three sections: Preparation - motivational skills; Ideation - versatility skills and Systematization - cognitive skills (see figure 9).

The Action Facto(R)y model was developed according with three sequential phases of creative work:

- Phase 1 – Preparation phase with sensorial and emotional exercises. The objective is to motivate both, individually or in group, to take working groups out of their comfort zones, trying to change the way they see, feel and act on "reality" (their changing cognition perceptions and actions).
- Phase 2 – Ideation with creative based exercises that deconstruct and reconstruct reality. Consists in generation and exploitation of new ideas seeking for new thematic connections, selection of results in a creative and innovative solution.
- Phase 3 – Systematization pursuing for strategic organization. It puts the previous process into operation where is required the financial integration of all aspects that involve the central creative idea and innovation.

Figure 9 - Action Facto(r)y



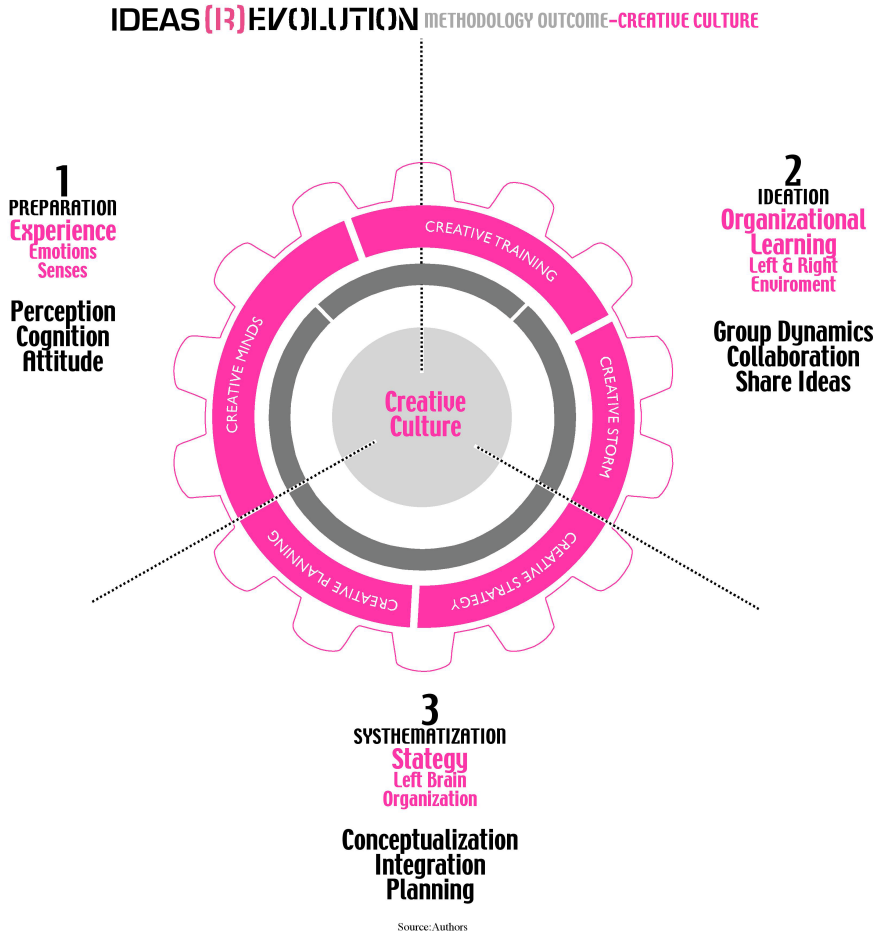
Source: Mateus et al (2010)

D- The Tools – Creative Facto(R)y - provide sets of tools for the construction and systemization of the methodology. These tools measure the implementation of the methodology both internal and external aspects as well as the stakeholders' emotional involvement throughout the process (see figure 10).

In this stage IDEAS(R)EVOLUTION was able to delivered a creative culture in organizations and people, culminating in the involvement of all stakeholders with four expected main results:

- Creative Company, aspiring build a creative culture and establish a creative space within the organization, a room, a table, the external environment or even a virtual environment where the creativity of stakeholders should be encouraged to emerge.
- Integrated Innovation, expecting to integrate the stakeholders' through a proactive participation, strategic and commercial decisions, involving them with the organization's emerging needs, as well as participating in the project.
- The Design and Value, which validates the project from a marketing-creative-action-expectation.
- Brand DNA that internalizes organization's emotional core concepts to be disseminated and implemented in order to further integrate the stakeholders' organizational procedures and justify the application of a creative methodology in a corporate management process.

Figure 10 - Creative Culture



Source: Mateus et al (2010)

At this point, the Action Facto(R)y model was built which is practice-oriented to action. It allows to innovate when looking up for new solutions and strong ideas for organizations with the objective of achieving an integrated innovation through a strong, creative and unique concept, that is generated through the full creative process and sequential components of the workshops.

In order to accomplish such outcomes, the following creative tools were developed for the model:

- **Creative Minds**: individual motivation, group motivation, change perceptions, change in cognition, exploring the senses, OpenMinds, a world view and role of each change in (R)CREATIVE evolution. There were five main tools as: Playfulness, unlocking the desire to play and imagine; "Physical touch", contacting with others and changing of perceptions; "Touch Clay" and "No-Vision" drawing exercises focused on the changing perception of reality through the introduction of other senses; "Never ending Group Story" with exercises to change the cognitive mindset of the group, "MindStorm" and 'Why not?' exercises that challenge attitudes and creativity barriers.
- **Creative Training**: that prepares the transition to Ideation, seeing beyond our reality (us and the organization, introducing new themes and trends in order to reconstruct and

generate ideas and concepts according with different realities). There were four main tools: (R)Storming, brainstorming with images as well as 'see' beyond reality: (R)oots Mapping, mapping to explore keywords; Moods (R)evolution to feel our target "under our Skin" and Visual (R)evolution to explore Ideas.

- **Creative Storm**: Request connections; explore ideas; select ideas with potential to find the main creative idea with main tools: (R)e_Build, (R)e_Organize, (R)e_Connection, (R)e_Selecting for group collaboration to experiment, to filter and to select ideas.
- **Creative Strategy**: It also explores the creative idea of an overarching vision to transform into a strategy with tree main tools: Innovation Mapping to Explore the Main Idea into integrated innovation; IN&OUT Vision to Explore the main idea into Business development and Brand Tree to explore the main Brand strategy.
- **Creative Planning**: Seeks to define a creative, functional and emotional brand based building tactics that support innovation, turning a brand into a Brand/Remarkable Idea with two main tools: Left & Right Branding (see figure 11) developing the overall Brand Plan and energy network to develop the brand management Tool.

Figure 11 - Left & Right Branding

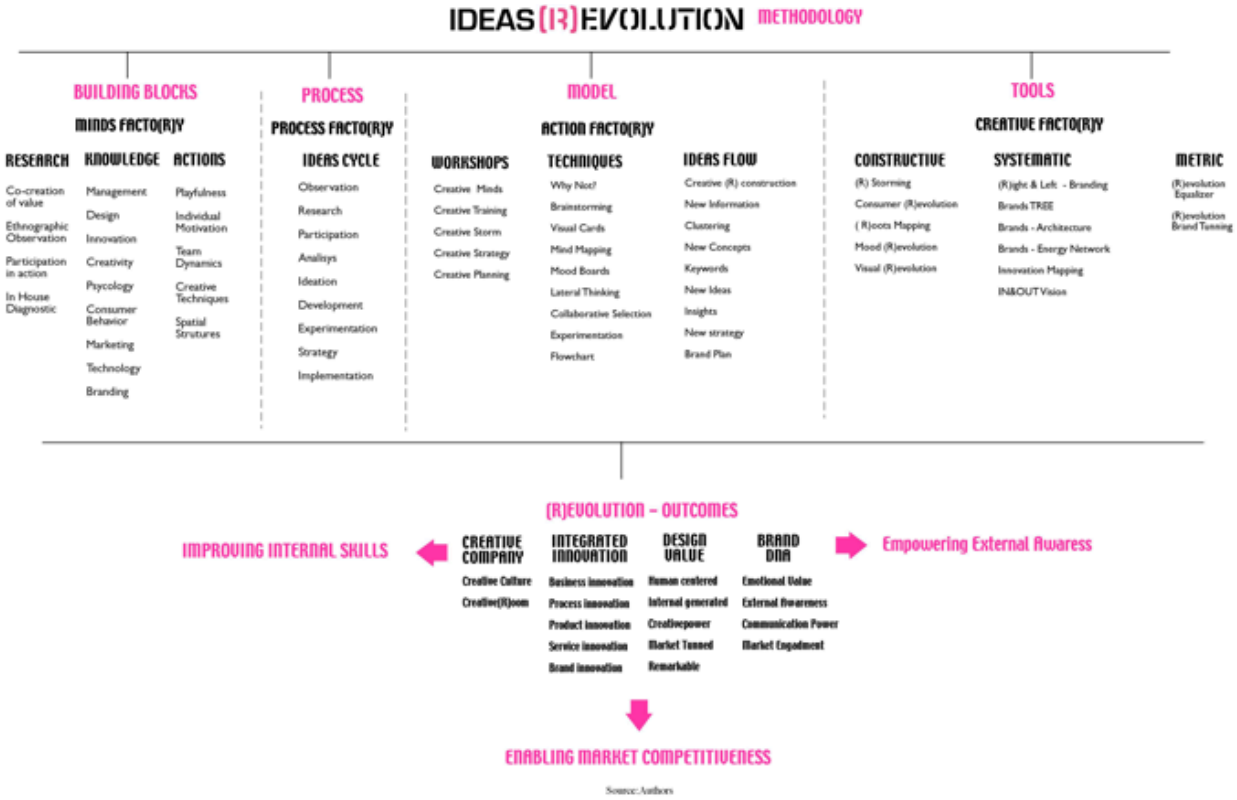
Source: Mateus et al (2010)

With the first pilot experiences of methodology implementation it was proved that people react positively when participating in the creative and innovative processes, and that with correct emotional and motivational drivers people change their behaviour in spite of the "barriers to change" and like to get involved. Transdisciplinarity and the "no boundaries" approach can effectively support the organization's focus on innovation.

This effect is enhanced by involving, both consumers and other stakeholders in the process from the outside of the organization. The creative and design thinking techniques are an important factor in surpassing the steps that arise in the problem-solving process as well as in selecting and filtering ideas in the final concept and systematization, strategic planning and the involvement of all functional areas.

The implementation and continuity of these processes may enhance the development of a creative culture focused on management, communication and formal creation, as we can see in the following figure 12. This blueprint and overview were the initial pre-model for the research of this thesis.

Figure 12 - Methodology Overview



Source: Mateus et al (2010)

1.3 Research methods

The research methods for this research are: (a) empirical studys and (b) experimental design.

1.3.1 Empirical study

The thesis was developed, initially, according to an Inductive-Empirical research study frame (Campbell & Stanley, 1963), through an experimental research design and a mixed of method research strategy, such as qualitative research, action research and model building methods. At the point when the object of study belongs to *empiria*, the substantial world of individuals, objects and occasions, the study is called "factual" or "empirical" as a difference to formal sciences like math and rational, which have no relationship to empirical (Routio, 2007). Empirical research methods are a class of exploration strategies in which exact perceptions or information are gathered keeping in mind the end goal to answer specific exploration question (Moody, 2002).

The empirical research as executed in this study is tied down in the behavioral sciences. The empirical methodology is clarified by examining two important methodological models, viz, the regulative cycle (van Strien, 1984) and the empirical cycle (de Groot, 1961). It includes pondering the estimation of

logical proclamations from one perspective and giving more viable rules to researchers. The previous concerns essential the method for thinking that identifies with the more philosophical parts of the procedure (Hofstede, 1980; de Groot, 1961; Koningsveld, 1976; Lakatos, 1970; Popper, 1959; van Strien, 1984). The last concerns the functional guidelines that deal with routines and procedures that are important to sort out exploration effectively and successfully (Meerling, 1980; Neale & Liebert, 1980; van der Zwaan, 1990).

According to Groot (1961) Inductive-observational exploration applies the experimental cycle in a strict sense after the necessities of the exploratory strategy in five stages:

- Observation: The gathering and management of observational truths; shaping hypothesis.
- Induction: Preparing a theory.
- Deduction: Deducting outcomes of hypothesis as testable forecasts.
- Testing: Testing the theory with the new exact material.
- Evaluation: Evaluating the conclusion of testing.

The empirical cycle aims at creating theories inside a predominant ideal model. A hypothesis alludes to an assortment of learning comprising of a specific number of rational principles. A hypothesis is utilized for forecast and clarification of the connections among variables. It is achieved by testing theories with exact information to achieve general explanations.

The final trademark aspect of the empirical cycle is that the specialist is an observer who is not a part of the issue being examined by method for individual association. This infers that there is a detachment between the scientist and the exploration object. The empirical cycle would not appear workable for different sorts of exploration. Troubles may emerge when the issue being examined is installed in a regular setting. This is the situation for this study. Regularly, such an issue does not fit in with the inflexibility of the examination model. In spite of striving to take after the cycle as strict as could be expected under the circumstances, the specialist needs to make a few concessions in the utilization of it. Sudden things may happen in light of which a strict control on gathering information can't be kept up or as a result of which an individual can't invest as much time joining in the examination. Also, the point of the examination could be that an issue needs to be illuminated by producing a concrete result. In practice numerous issues exist, which need to be fathomed by a sensible outline; for instance, a choice help supportive network needs to be intended to help an organizer, or a system for hierarchical judgments needs to be produced to help a director. Commonly the aftereffect of such research is that some intercession in practice will happen. The exact cycle does not manage this viewpoint.

Van Strien (1984) created the regulative cycle, which goes for interceding into practice by making an arrangement in which the center is on tackling an individual issue specifically circumstances. There

will be an acceptable customer association which has an issue and which is included throughout the entire cycle. This implies also that the analyst is likewise included with the issue circumstance. The issue circumstance and the exploration are affected by one another. The improvement arrangement is frequently suitable for that particular circumstance. In this appreciation the regulative cycle does not go for general explanations or at creating speculations. The vital foundation is the sufficiency of the result. How the regulative cycle is regulating as in the improvement of a configuration or arrangement is guided by a target determined from the issue under thought. Next, the created arrangement works as the standard for taking care of the issue. This regularizing character is incorporated in each one stage in light of the fact that there is an issue which needs to be understood to make better conditions. For instance, the critical thinking is steered by an association model. The regulative cycle could in this manner be helpful for outline arranged examination. The stringency of the experimental prerequisites as in the exact cycle could scarcely be met due to the promptly dynamic character of the regulative cycle. This implies that the circumstance being contemplated is consistently included in the examination process. The scientist can't simply venture out of the circumstances, it could be probably protected that a hypothesis around an outline for tackling an issue has been produced. Additionally, the decisions made in the improvement of the configuration are advocated by rules and arguments.

It ought to be perceived that these two models lie at both ends of a continuum. In spite of the fact that these two models are, for the most part, independently connected in exploration, van Strien (1984) and de Groot (1961) both show a relationship between the two separate models: a hypothesis as an after effect of the empiric cycle could be prepared in periods of the regulative cycle in order to act viably. In this sense these two cycles profit from one another. In addition, hypothetical bits of knowledge are converted into viable convenience, and input from the design in practice animates a superior understanding of theories. Besides having the capacity to utilize the after effects of each one cycle inside the other cycle, it would additionally be conceivable to coordinate (stages from) the exact and regulative cycle inside one examination venture. This could be attained, for example, by performing the perception and affectation stages and immediately establishing design guidelines for decision help. This alludes to the arranging stage. The perception and initiation stages go about as alternatives for the issue and analysis stages. This study utilizes comparable stages from the two cycles.

Empirical research, in general starts, with a priori theory, in the present case it is the existing design thinking for innovative approaches. The researcher, developed a new conceptual model frame, IDEAS(R)EVOLUTION, which was based on: (a) the existing theory emerged from the initial extensive bibliographic review; (b) on the conceptual model developed on the researcher master thesis M&DR – Marketing and Design for radical innovation business oriented businesses. The reason for this study is to examine the theory and potentially improve it. In this specific case, this exploration as led to create a

hypothesis (the grounded hypothesis approach), predominantly through IDEAS(R)EVOLUTION methodology investigative approval.

According to Routio (2007), categories of the procedures in the empirical study of human artifacts and activities on the premise of the probable outcomes from the study:

- Descriptive (or "disinterested") approach which points basically at collecting information (i.e. explanations and descriptions) about the object of study, yet does not wish to alter the subject. The target is to discover how things are, or how they have been. The venture might likewise incorporate social event sentiments about the attractive quality of the current situation with things, but it does exclude arranging any negative outcomes.
- Normative approach tries to describe how things ought to be, which implies that it will be important to describe additionally the subjective perspective that should be utilized. The project entails defining or arranging upgrades to the object of study or to later analogous objects, however it does exclude completing the arrangements in practice. This methodology has at times been called "applied research" however this group does not get its force and it won't be utilized in the following.
- Development projects aim at enhancing the object of study or later comparable objects. Other than completing the commonsense operations, the plan incorporates the arranging and the exploration that is required to give a premise for the plans. This, on the other hand, is very much alike to other regulating examination, and consequently the systems for improvement are in the following, discussed together with other normative research.

Likewise, empirical studies need to be arranged based on the assumed degree of universality of the study's result. This choice must be considered when deciding the degree of the study, i.e. how much material has to be collected, and this impacts the determination of dissection strategy. Two important choices in this regard are (Routio, 2007):

- Intensive study seeks facts that concern particular cases, for example, particular models of products or their named originators. This kind of facts is once in a while called "idiographic" information. In the event of normative study, the target will be to evacuate a particular reasonable issue or to improvise the same object that was being assimilated (or other comparable items). Due to the limited number of items, it is conceivable to study them completely in their authentic ambiances with all their pertinent properties and

connections (i.e. the study is comprehensive), hence accomplishing a profound understanding of their position and importance in the social and social connection.

- Extensive study looks for knowledge which is basic to all or the vast majority of the objects in the class and maybe somewhere else, too, in other words, generally valid or "nomothetic" learning. If the objective is normative, it will mean enhancing the whole class of objects. The amount of items in the study will generally be extraordinary, and it will be important to limit the measure of data and forsake the objective of comprehensive study. The specialist is constrained to select record and investigate just those qualities of the questions that he judges as critical and intriguing in his project.

At the point of joining the two categories, the present study speaks to an intensive normative style of study. In the intensive normative study, when trying to enhance an item or a state of things, it is frequently conceivable that some of those individuals take part in the venture whose assessments or interests might control the arrangement of the normative proposals (Bryman, 2012):

- Participatory approach where, at any rate, a percentage of the clients of the results take part personally.
- Participatory normative study. A dependable system for forming recommendations for enhancing a state of things is the support of the individuals whose lives will be influenced by the suggestions when completed.

Notwithstanding, all the time it would be troublesome or difficult to arrange in practice the contribution of all these individuals.

Presently, most of the correlated groups of interest were being represented in the meetings and workshops of these projects.

As a point of departure can frequently be taken either the current disservice or a perfect state of things which maybe is in itself unattainable, and on the premise of one or both of these the gatherings can concur about the proposal. In the best case further studies won't be required whatsoever.

Participation typically brings with it differentiating assumptions, it is very typical that contradiction propels re-trying a piece of the work and coming back to a prior phase of the procedure. In the event that there are a lot of people such regressive furnishes a proportional payback starts to look like more a ring than a direct progression of choices (Saunders et al., 2012). To be sure, a spiral as spoken to is extremely run of the mill model of development project.

Following are the ordinary stages in the iterative "spiral of development":

- Evaluative representation of the starting state (maybe including its prior development) and characterizing the requirement for changes.

- Analysis of connections and potential outcomes to change things.
- Synthesis: suggestion for development (and it's trying, in a project of development).
- Evaluation of the suggestion or of the test.

1.3.2 Experimental Design

Experimental Design is normally perceived as the most ideal strategy for reaching causal results about instructional interventions, for instance, which instructional technique is best for which sort of circumstance under which conditions (Campbell & Stanley, 1963). As per Gay (1992) the test system is the main strategy for research that can really test theories concerning circumstances and end results connections.

According to Campbell and Stanley (1966), traditionally tree necessary conditions are accepted to validate to affirm the direction of causality from A to B:

- Temporal advance,
- Covariance,
- Absence of plausible alternative explanations.

This last point is particularly concerning the types of conditions of validity of the trial, which constitutes the subject of more systematic elaboration by the authors. This proposes a distinction between internal validity and construct validity. Construct validity of which is challenged is a proper signification attributed to independent and dependent variables, i.e., disputes the model, the construct, suggesting an alternative interpretation of the manipulated variables. Thus, adequate experience involves:

- That the antecedents are clear temporal,
- That there is a statistically significant co - variation between cause and effect,
- There are no variables that the 3rd can give an alternative explanation for the cause-effect relationship,
- That there are no alternative hypotheses about the constructs used.

Experimental investigations could be directed on individuals or many people; hence, the structure of the outline changes as gathering test plan, or single-subject exploratory configuration (Sekaran, 2013). Group experimental plans might be of diverse structures if there is one autonomous variable that could be controlled, and afterward a solitary variable configuration is utilized. These studies are grouped under three fundamental headings relying upon the level of control kept up on different variables:

- Pre-experimental designs (low level of control): One specific group plans and outlines that compare previous gatherings;
- Quasi-experimental designs (medium level of control): Experiments that have treatments, conclusive measures, and test conditions, yet that doesn’t utilize arbitrary choice;

- True experimental designs (high level of control): Experiments that have treatments, result measures, and exploratory conditions and use arbitrary choice. This is the strongest situated of outlines regarding inside and outside legitimacy.

Regarding the present research study, the researcher define two stages:

- To run four pre-experimental cases: Alvito, Santa Casa, Oeste Activo and Caldas da Rainha.
- The final validation case EDP – User Centered Innovation Program, executed by a quasi-experimental method because the test groups were controlled pre-post hoc.

Regarding the method called quasi-experiment, the main elements of a design are: non-equivalent group and interrupted time series (Shadish et al 2002):

A. The Elements of Design

Quasi-experiments might be reinforced by including astutely picked design elements that lessen the number and possibility of inner legitimacy dangers (Shadish, Cook and Campbell, 2002).

- In quasi-experiment five different elements could be used for assignment. Here, we focus on some nonrandom elements. For example:
- The element of masking suggests blinding researchers or other staff with the members. It keeps two inclinations: 1) investigator and member reactivity to information of the condition to which the member has been allotted and 2) endeavors by those included in work to impact results from the condition to which a member is doled out.
- Researchers expect that by controlling the nature and scheduling of measurements in a study they can improve the causal inference. Shadish, Cook and Campbell (2002) emphasize the post-test observations and pre-test observations.

In quasi-experiments the Comparison groups of non-equivalent groups are deliberately decided to have a most extreme pretest aggregate on whatever number watched attributes as could be expected under the circumstances or on some specific gimmick that the researcher accepts will be a specific notable risk to legitimacy.

B. The non-equivalent group design

This design is most repeatedly utilized within social research (Shadish et al, 2002). Researchers who utilize this technique attempt to select gatherings that are as comparable as would be prudent so

they can hope to measure up the information gathering with the correlation bunch. Next, we specify the five most regular conclusion designs that are seen with the pretest-post test comparison group:

- both teams or groups develops separately in the same course;
- unchanged control bunch;
- early pre-test contrasts supporting the aggregate that lessens about whether;
- preliminary pretest contrasts supporting the control amass that decreases about whether;
- outcomes that traverse toward connections.

C. Interrupted time series design

The interfered with time arrangement outline speaks to a valuable semi exploratory option to randomized outlines when the last are not possible and when a period arrangement might be discovered (Shadish et al, 2002). A few dangers to legitimacy utilizing this system are:

- the possibility that forces other than the subject under investigation influenced the dependent variable at the same time at which the intervention was introduced;
- the instrumentation such as changes in administrative procedures and;
- the selection in the case the composition of the experiment group changes abruptly at the time of the intervention.

In the final EDP-user centered innovation program case study, the research adapted an non-equivalent group design. It was structured in a way that required a treatment group and an untreated comparison group with both protest and post-test data gathered in the same units (Mateus et all, 2013).

1.4 Research Design

1.4.1 Initial research approach

We defined an initial research strategy, since the research design is experimental, that the pre-experimental cases implementation along with the continuous bibliographic review procedures, introduces new research questions but also new research techniques and methods that will need to be incorporated on the overall research strategy, for the reason that the existing research is developed under working research strategy methods (WRS). The researcher selected the following initial research mixed of methods: qualitative research, action research and model building.

A. Qualitative Research

The researcher inferred that a qualitative research methodology leaning towards revelation, depiction, and all-encompassing understanding of courses of action and exercises was a suitable point of departure, principally:

- Research enables a holistic perspective: Qualitative research expects that an entire marvel is under study and that a complex framework can't be seriously decreased to a few variables and straight causal connections. Patton states, “The advantages of qualitative portrayals of holistic settings and impacts is that greater attention can be given to nuance, setting, interdependencies, complexities, idiosyncrasies, and context” (Patton, 1990).
- Research incorporates an emergent design: The study outline cannot be totally defined ahead of time of the hands on work. Comprehension creates and advances through the examination process and every information accumulation and dissection movement advise resulting information gathering and investigation exercises.
- Research is descriptive: Qualitative research focuses on describing and understanding a phenomenon. Description includes a detailed account of the context, the activities, the participants, and the processes.
- Research is primarily concerned with process rather than outcomes or products: Qualitative research focuses on processes and is interested in understanding and describing dynamic and complex processes.
- Research involves fieldwork: Fieldwork implies that the researcher has direct and personal contact with the people involved in a phenomenon and in the natural setting of the phenomenon. The researcher conducted several fieldworks with different participants and stakeholders to understand the phenomenon in its natural setting.
- Research uses the researcher as the primary instrument for data collection and analysis: Qualitative research assumes that data are mediated directly by the researcher rather than through questionnaires, surveys, or other data collection instruments.
- Research is interested in how people make sense of their lives, how they interpret experiences, and how they structure their social world: Standards development is a social process in which a variety of stakeholders come together to agree on one or more ways of doing something. A qualitative approach assumes that each stakeholder brings various interpretations and values to the process. This study directed attention to the individual and their perceptions, values, and interpretations.

Linking the assumptions to the specific character of the research demonstrates that a qualitative research approach was appropriate for this study:

- A holistic orientation to address the complex of activities, entities, processes, and forces, and their interrelationships,
- A flexible research design to allow the researcher to pursue new directions in data collection as understanding developed during the research,
- An orientation towards detailed description that addresses both the context and development,
- A focus on the participants and the process through fieldwork activities,
- An inductive process that identifies and characterizes categories and patterns in the data and grounds the findings in the data.

B. Action research

Despite the clouded origins of action research, Kurt Lewin, in the mid 1940s constructed a theory of action research, which described action research as "proceeding in a spiral of steps, each of which is composed of planning, action and the evaluation of the result of action" (Kemmis and McTaggart, 1991). Lewin argued that in order to "understand and change certain social practices, social scientists have to include practitioners from the real social world in all phases of inquiry" (McKernan, 1991). This construction of action research theory by Lewin made action research a method of acceptable inquiry (McKernan, 1991).

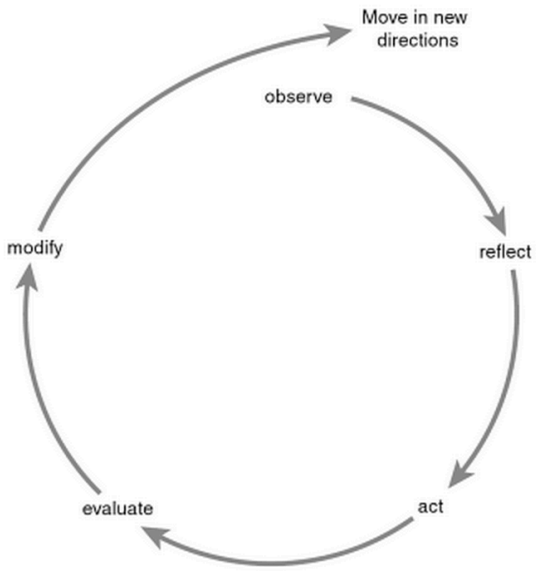
As stated, Kurt Lewin is regarded as the founder of Action Research, coining the term in 1944 and developing the central process that forms the methodological foundation of the majority of Action Research approaches today. Other prominent theorists that have contributed significantly to the development of Action Research approaches include Paolo Freire and Robert Chambers (Popplewell et all, 2012)

John Elliott, Stephen Kemmis, Clem Adelman and others, were very important to define action research main concepts, but Jack Whitehead research group gave an interpretive meaning to action research creating new variations like, self-study action research, first-person action research, living theory action research, or just plain action research (McNiff, J. & Whitehead, J., 2011).

What makes action research distinctive is that the practitioners research have their own practices, that are different from of social science the traditional forms, where a professional researcher does research on practitioners, being themselves a part of the context and asking if the work is on the right

way, if it need a necessary improvement, if it´s already satisfactory to make a evolution and produce evidences. (see figure 13) (McNiff, J. & Whitehead, J., 2011).

Figure 13 - An action-reflection cycle



Source – McNiff, J. & Whitehead, J. (2011)

In action research studies, also referred to as community based research, participatory action research, or collaborative inquiry, research is not done on or with participants; research is designed, carried out, and integrated by the participants in partnership with the researchers. Based in emancipatory social theory and designed to democratize the research process, action research is an iterative process in which researchers and practitioners act together in the context of an identified problem to discover and effect positive change within a mutually acceptable ethical framework (Lingard et al, 2008).

In the different points of view about action research, there is a common agreement that (McNiff, J. & Whitehead, J., 2011):

- Action: taking action to improve practice, and…
- Research: finding things out and coming to new understanding, that is, creating new knowledge. In action research the knowledge is about how and why improvement has happened.

The key features of action research include:

- its collaborative nature,
- its egalitarian approach to power and education in the research process, and
- its emphasis on taking action on an issue.

The extensive collaboration between researchers and partners in action research must extend across each stage of research, from identifying the problem to disseminating the results. This collaboration entails shared control of the agenda and also involves reciprocal education to improve researchers' and research partners' understanding of one another's positions and contributions (Lingard et al, 2008). Finally, the study must blend scientific inquiry with social action by creating knowledge that is relevant to the research partners' needs and interests.

The purpose of action research is (McNiff, J. & Whitehead, J., 2011):

- to generate new knowledge,
- feeds into new theory.

It is also important to state that, like all kind of research, action research, share common features that enforces what is research (McNiff, J. & Whitehead, J., 2011):

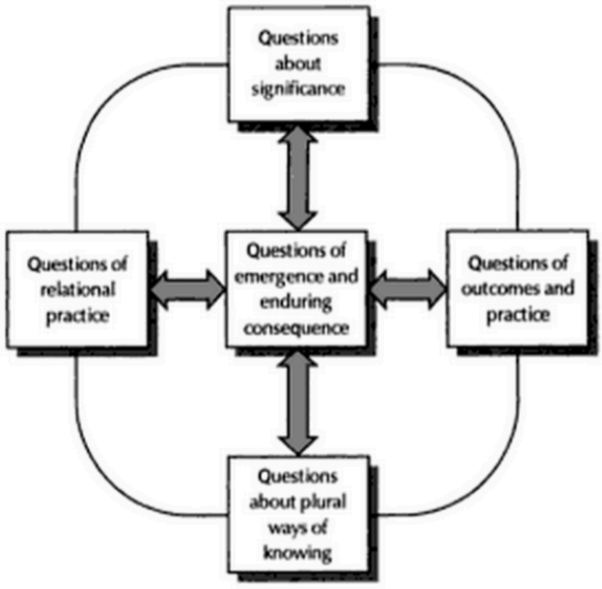
- Identify a research issue,
- Identify research aims,
- Draw up a research design (plan),
- Gather data,
- Establish criteria and standards of judgment,
- Generate evidence from the data,
- Make a claim to knowledge,
- Submit the claim to critiques,
- Explain the significance of the work,
- Disseminate the findings,
- Link new knowledge with existing knowledge.

For Reason and Bradbury (2006), there are five questions about the validity and quality of action research practice (see figure 14), once that this model is seen as an emergent, evolutionary and educational process of engaging with self, persons and communities which needs to be sustained for a significant period of time. And for that, the authors make pragmatic questions of outcomes and practice:

- What are the outcomes of the research?
- Does it work?
- What are the processes of inquiry?
- Are they authentic/life enhancing?

- Our reflection on ways of knowing encourage us to ask what dimensions of an extended epistemology are emphasized in the inquiry and whether this is appropriate?
-

Figure 14 – five questions about validity and quality of the process.



Source – Reason and Bradbury (2006)

Action Research approaches are participatory; they involve a collective process of knowledge generation and ultimately aim to democratise this process. Reason and Bradbury (2006) describe Action Research as: (…) "*A participatory, democratic process concerned with developing practical knowing in pursuit of worthwhile human purposes… It seeks to bring together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people and more generally the flourishing of individual persons and their communities*" (…).

Despite the tenuous lines to defining the Participatory Action Research (PAR) from the conventional Action Research, the majority of the projects are (McIntyre, 2008):

a) a collective commitment to investigate an issue or problem,
b) a desire to engage in self-and collective reflection to gain clarity about the issue under investigation,
c) a joint decision to engage in individual and/or collective action that leads to a useful solution that benefits the people involved, and
d) the building of alliances between researchers and participants in the planning, implementation, and dissemination of the research process.

"As participants engage in PAR, they simultaneously address integral aspects of the research process – for example, the question of who benefits from a PAR project; what constitutes data; how will decision making be implemented; and how, and to whom, will the information generated within the PAR project be disseminated?" (McIntyre, 2008, p.1)

But the processes are identical, since the participatory factor is itself intrinsic to the process.

C. Model Building

The third feature of the exploration procedure was that of model building.

A model is an "explicit interpretation of one's understanding of a situation, or merely of one's ideas about that situation" and a "description of entities and the relationships between them" (Wilson, 1984).

The model gave a sharpening schema to approaching the subject of guidelines improvement. It didn't drive the information accumulation as in customary hypothetic–deductive examination. Rather, the model sorted out ideas, for example, inputs, yields, forms, data input, limits, and environment that the specialist investigated in a roundabout way in information accumulation.

The model arranged the researcher, in the start, towards incorporation and openness to uncovering what information to gather as opposed to setting out cutoff points and prohibitions on what to go to or gather.

On the other hand, Patton (1990) focuses on that the researcher "does not enter the field with a completely blank slate" and that "some way of organizing the complexity of reality is necessary." He suggests that sensitizing concepts serve such a purpose by providing a "basic framework highlighting the importance of certain kinds of events, activities, and behaviors" (Patton, 1990).

Wilson (1984) recommends that a model may be illustrative or prescriptive, "but above all, it must be useful".

For this study, the modified last model introduced in the conclusion of thesis is a further step towards picking up a comprehension in understanding the Design thinking for development improvement. The model is grounded in the study's information and enhances the enlightening power the descriptive model. While keeping inside a system– theoretic model, the changed model augments the force of a frameworks by bookkeeping adroitly, for the evolutionary mode of IDEAS(R)EVOLUTION development itself. All through this study (see figure 15), the objectives of investigation and portrayal outweighed generalizability, model testing and consistency.

Figure 15- Initial Research Strategy

EMPIRICAL STUDY	INTENSIVE NORMATIVE STUDY	Participatory normative study
EXPERIMENTAL DESIGN	HOLISTIC PERSPECTIVE	Pre-experimental Quasi-experimental
QUALITATIVE RESEARCH	HOLISTIC PERSPECTIVE	Interested groups Ethnography, Observation Interviews, Participative research Action research, Learning communities Observers
ACTION RESEARCH	SELF-COLLECTIVE ENGAGING	Collaborative Participatory
MODEL BUILDING	OPENESS DISCOVERING	Prescriptive

Source – the author

1.4.2 Detailed Research Design

Initially research questions where formulated (RQi - initial research questions). To be empirically tested, the research questions needed to be transformed into a theoretical model – IDEAS(R)EVOLUTION, consisting of theoretical constructs (latent variables), causal relationships and measures (observed variables). The initial theoretical conceptual model was generally developed based on analysis of the reviewed literature. The theoretical model forms the basis both for collecting and analyzing data, and it was modified according to the results of the field case studies research projects (RQw – working research questions). During the implementation of the five pre-experimental cases, several working questions aroused (WRQ – Working research questions) from witch a new bibliographic review focus was conducted. The new state of the art knowledge was then incorporated com the evolutionary methodology in one of the important operational models, on the processes or on a new tool were developed and then tested on the sequential cases on the research design.

The researcher developed the following overall study design, activities, and the extent of data resulting from this approach. The study design reflects the logical flow from the preliminary activities that initiated the study and the development of the preliminary conceptual model through the data collection and analysis, the refinement of the conceptual model, and the articulation of a set of working questions (see figure 16).

- Preliminary activities—To justify and initiate the study, the researcher:

- Conducted an extensive literature review of writings on standards development, previous research on standards development, theoretical frameworks and models appropriate to the research. The review corroborated the need for this research and provided support for the preliminary conceptual model,
- Conducted a series of preliminary interviews with experts in the standards arena that confirmed the need for research on this topic and assisted the researcher in identifying an initial list of issues related to standards development,
- Incorporated the researcher's knowledge and assumptions about standards development (based on his previous involvement in design thinking for innovation standards development activities) into the study design and the preliminary conceptual model.

• Development of preliminary conceptual model—The researcher proposed a preliminary conceptual model based on a review of the literature and the researcher's experiential knowledge to serve as a guiding framework for the research.

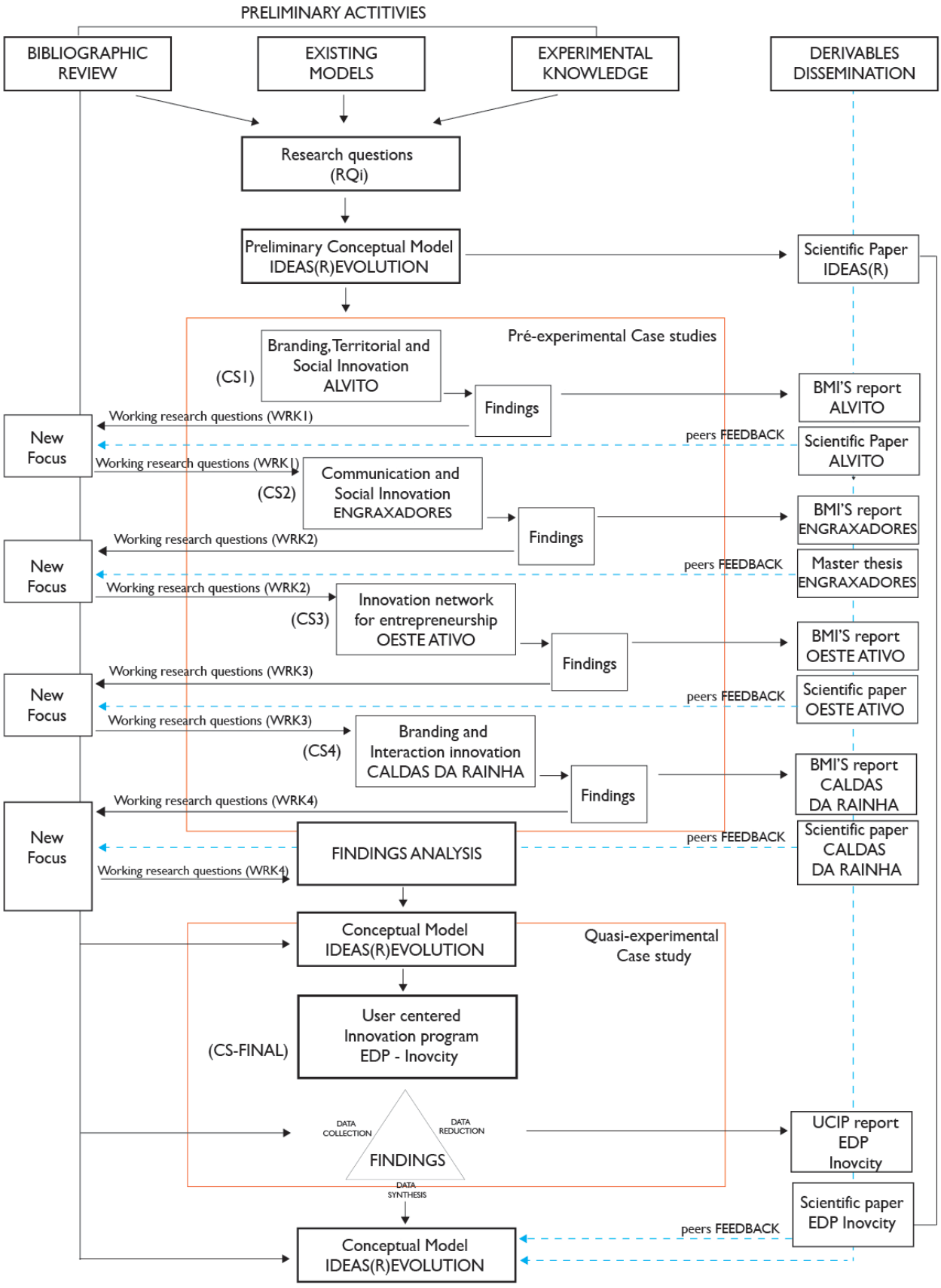
• Implemented a series of fieldwork four sequential cases applications of the preliminary conceptual model:

- *Findings*: the researcher entailed about discoveries on each in two different deliverables: (a) an scientific based article distributed in a few distinctive gatherings; (b) the fundamental discoveries were joined in the careful investigations discoveries report in the present research thesis.
- *Working Research Questions (WRQ)*: The research endeavor discovering brought new and more particular research addresses that required to be tended to as another concentrate on the consistent bibliographic review.
- *Revise and enhance the conceptual model*: On the basis of the findings from the data analysis, the researcher revised the preliminary conceptual model to represent the development of IDEAS(R)EVOLUTION. Also, these inputs allow now setting for the continuous bibliographic review.
- *Derive working questions outputs*: On the basis of the experimental data of IDEAS(R)EVOLUTION and the revise bibliographic review, the researcher identified a set of working questions (WRQ) These statements, based on study findings, propose relationships between activities, entities, forces, operational models and processes involved IDEAS(R)EVOLUTION development to be tested in subsequent research.

- *Member checks*: The researcher engaged participants and experts in IDEAS(R)EVOLUTION cases and other organizations project responsible to respond to and comment on data and findings to their accuracy and credibility.
- *Final report*: The researcher compiled the results of all study activities into a specific developed document called BMIS (Brand, Marketing and Innovation Strategy).

- Define a final conceptual model to be tested in a final fieldwork implementation case – EDP User centered innovation program:
  - After the final revise on IDEAS(R)EVOLUTION preliminary conceptual model, adapted the new inputs and insights from de four pre-experimental cases, a version full version on the conceptual model was develop to be test trough the implementation on the full process on a EDP (national energy company).
  - The implementation was divided in tree main phases:
- Co-creation: From internal diagnostics to final stakeholders ideas for new product, services or communication insights.
- Validation and prototyping: From internal validation, consensus and ranking of the stakeholders ideas to the development of physical and technological prototypes.
- Living lab: The prototypes were tested on real-life context with a tree groups design experiment research to obtain feedback of the stakeholders ideas for innovation.
- Data collection, data reduction, and data analysis: The researcher collected data sufficient to address the study's initial research questions. Also the incorporated working research questions were tested. Using multiple methods of data collection and multiple sources of evidence validated both. Collection and analysis was an iterative process. The researcher coded the information as a technique for information lessening. Combination of the information included thinking about and checking information from different sources.
- Final report: The EDP case ended with the delivery of a complete final report were all process, all stages and all findings and final results were publish and publicly presented to ERSE (Entidade reguladora dos serviços de energia) and disseminated to all energy service providers in Portugal. Also were presented to S3C, a European financed research project in which the researcher is integrated as Advisory board expert member.

Figure 16 – Design Research



Source – The author

Quasi-Experimental Research – Final study

1.5 Techniques for Conducting the Data Gathering

Marshall and Rossman (2006) explained that the different techniques for gathering the data have different strengths and weaknesses. For instance, some techniques such as interviews and observation facilitate the analysis, validity checks and triangulation whereas others, such as internet and life stories imply more difficulty. We used the two types of techniques: (a) Observation and (b) communication.

The research used several different forms of collecting onformation under each of the two techniques:

A. *Observation*

Two types of observation techniques are described in the literature. These are pure observation of objects and participant observation. The former aims to discover complex interactions in natural social settings by systematically recording and noting different events, behaviors and artifacts (Marshall and Rossman, 2006). Researchers who use this technique enter the field without a previous determination of possible categories to observe. Then, once these are identified and described researchers begin to focus on certain specific themes that might explain behaviors and relationships over a long time or in a variety of settings. The principle objective of this system is to gather point-by-point, nonjudgmental and cement portrayal of what has been watched. The later, requests specifically inclusion of researchers in the social world. This procedure proposes researchers to emerge, for a particular time of time, in the settings to start to tune in, to see and to encounter as members do.

- Observers

Surveillance of the task or mission performance

This technique is used to understand the actual performance of the task. Each stakeholder is observed when the stakeholder is performing the required task. In the meantime, the “observed” is asked to verbally process keeping in mind the end goal to uncover his or her thinking courses of action. If necessary, addresses about the execution of the errand are asked. The point of interest is that a reasonable understanding into the particular issues of the subject is procured along these lines. There are two confinements to utilizing the perception of the undertaking execution: Firstly, an exact examination among the distinctive stakeholders it is hard to be made in view of the contrasts between them. Furthermore, watching the assignment execution gives a constrained knowledge into the cognitive courses of action.

B. *Communications*

Interviews allow researchers to acquire data that can't be straightforwardly watched. Case in point, qualitative questioning starts with the supposition that the viewpoint of others is significant, comprehensible, and ready to be made unequivocal (Patton, 2002). Furthermore, Daniels and Cannice (2001) indicate that the interview is an advantageous technique because it allows researchers: 1) to conduct an exploratory study where little or no pre-existing theories have been explained; 2) to collect rich and in-depth information when the population of responders is small and finally 3) to develop a deeper rapport with informants that in creases the accuracy of responses. Additionally, Marshall and Rossman (2006) suggest interviews for gathering qualitative data because it facilitates data quantity quickly in the case that more than one person participates, allows researchers for an immediate follow-up, and clarification and finally, in case that it is combined with other methods such as observation it allows researchers to understand the meanings that interviewees give to their everyday activities.

- The focus group interviewing

This method consists of interviewing six to eight people at the same time for around two hours and it usually does not contain more than ten questions (Patton, 2002). This type of interviewing has the principal characteristic that collects the perception of people, which is in turn influenced by the view of others in the same group. This method has the following benefits: it is efficient for collecting data from a wide range of people simultaneously; the interaction of the group sheds light on important issues and topics in the organization, program which in turn may show the shared view of the participants.

- Informal conversation interviewing

This type of interview has the characteristic of being the most open-ended where questions arise as the interview unfolds. This technique normally is beneficial when researchers have access to data more than once and can stay in the field for a particular period of time. The qualities of this procedure are: that permit researchers to respond to startling progressions, inquiries could be redone to every interviewee and to utilize circumstances for prompt solidness. However, this technique requires a long period of time for collecting systematic information from various interviewees and the collected data is more difficult to analyze. So, it depends on the skills of researchers for adapting to different situations and conversations.

- Standardized open-ended interviewing

The open-ended interview is a useful technique when researchers have limited access to interviewees or the time is limited. Additionally, in this type of interviewing researchers have to carefully

consider the wording and the sequence of each question which in the evaluation phase: 1) will allow the use of the same analysis instruments 2) will minimize the variation of responses among interviewers and 3) will maximize the use of the time during the interview.

- Closed or Survey interviews

In the closed fixed or survey interviews both questions and response categories are determined in advance. In general this type of interview aims to ask a wide range of questions in a short period of time. It has the principal disadvantage that interviewees have to adapt their responses to the ones proposed by the interviewer.

- Guide-approach interviewing

In this type of interview researchers determine in advance the topics and subjects that are to be explored during the interviews. This technique has two main advantages: first it allows researchers to establish an interview without moving away to the particular subject area. Second, it delimits the areas in advance where researchers are able to conduct interviews across a larger number of people in a more systematic and comprehensive way than with the informal conversation type.

- Thinking aloud protocols

“Thinking aloud” is a helpful method for investigating the cognitive courses of action underlying the assignment execution of a master or tenderfoot (Breuker, Elshout & van Someren, 1986); subsequently, the reasoning distinctly convention has been a by and large acknowledged strategy in research on critical thinking for a long time (Newell & Simon, 1972; Ericsson & Simon, 1984). In the reasoning resoundingly convention individuals are asked to talk distinctly what they think while taking care of a particular issue. As it were an endeavor is attempted to verbalize the cognitive methodologies. (Elshout & van Leeuwen, 1992). Thinking aloud’synchronizes along these lines with the cognitive procedures. This contrasts from contemplation where the cognitive procedures must be recovered a while later from memory. Verbalization in a convention are subsequently more dependable. An alternate point is that when the undertaking is well known to the subject, a faultless verbal report is gotten (Nisbett & Decamp Wilson, 1977). Also, the reasoning distinctly convention as a system increases power when offering a controlled errand, particularly when such an assignment is offered to gatherings with distinctive levels of skill (Roth & Woods, 1989). Hayes-Roth and Hayes-Roth (1979) have effectively obtained experience with verbally processing conventions in their research of an arranging errand for doing tasks.

The reasoning with thinking aloud’ is tape recorded and translated truly thereafter. The result is in this way a composed report on which further examination needs to be carried out, the supposed

convention investigation. This gives a tremendous measure of information, which needs to be overseen precisely. Frequently the translation of conventions is an iterative methodology (Stark & Bainbridge, 1985). Then again, the legitimacy of a convention dissection seems, by all accounts, to be high. An extravagant portrayal of the utilization and translation of verbally processing conventions and a convention dissection might be perused in Newell and Simon (1972), Nissbett and Decamp Wilson (1977) and Ericsson and Simon (1984).

- Interaction Analysis

This technique allows researchers to obtain patterns of interaction that reflects verbal and non-verbal communication. This technique is seemly useful for confirming information that has been collected either with interviews or observations. Further, gathering interaction information could be conducted in variety of settings facilitating statistical analysis. Marshall and Rossman (2006) suggest two different kinds of methods kinesics and proxemics. The former is the study of body motion and its communicative messages whilst the latter is the study of the use of space by a specific group of people. These two methods have been studied since the 70s (Birdwhistell, 1970, Hall, 1966)). A new technique that has emerged from the interaction analysis is experience sampling that is explained next.

- Experience Sampling

Experience sampling is a technique that allows researchers to study in-depth experiences and behaviors in their natural context (Miner, Glob, & Hulin, 2001). This allows researchers to answer questions about models of behavior that involve state variables that can be fitted to previous data to describe when behaviors happened and who engaged. The strengths of this technique are: 1) relations among variables could be tested over a longer period of time; 2) shows when experiences and behaviors take a new meaning; 3) collected data are less subject to biases in recall of behaviors events and 4) by using computer technology participants can deliver real-time information.

- Consensus Tools

The Delphi strategy is an iterative methodology used to gather and distil the judgments of specialists utilizing an arrangement of polls sprinkled with input. The surveys are intended to concentrate on issues, open doors, results, or conjectures. Every consequent survey is produced focused around the aftereffects of the past poll. The procedure stops when the research inquiry is replied: for instance, when accord is arrived at, theoretical saturation is attained, or when sufficient data has been exchanged.

The Delphi technique's adaptability is obvious by the way it has been utilized. It is a system for organizing a gathering correspondence methodology to encourage bunch critical thinking and to structure

models (Linstone & Turloff, 1975). The technique can likewise be utilized as a judgment, choice supporting or estimating device (Rowe & Wright, 1999), and could be connected to program arranging and organization (Delbeq, Van de Ven, & Gustafson, 1975). The Delphi system might be utilized when there is deficient learning around an issue or phenomena (Adler & Ziglio, 1996; Delbeq et al., 1975). The method could be implemented to issues that don't give themselves to exact investigative methods, yet rather could profit from the subjective judgments of people on an aggregate premise (Adler & Ziglio, 1996) and to center their aggregate human brainpower on the issue within reach (Linstone & Turloff, 1975). Additionally, the Delphi is utilized to examine what does not yet exist (Czinkota & Ronkainen, 1997; Halal, Kull, & Leffmann, 1997; Skulmoski & Hartman 2002). The Delphi strategy is an adult and an extremely versatile research technique utilized as a part of numerous research coliseums via researchers all around the world.

While the Delphi is regularly utilized as a quantitative system (Rowe & Wright, 1999), a researcher can utilize qualitative methods with the Delphi technique. The Delphi system is appropriate to thoroughly catch qualitative information. It may be seen as an organized process useful for utilization in qualitative, quantitative or blended research techniques. The Delphi methodology could be forceful and inventively adjusted to a specific circumstance. Second, when adjusting the methodology, there is a need to adjust legitimacy with development. As it were, the more noteworthy the takeoff from traditional Delphi, the more probable it is that the researcher will need to approve the results, by triangulation, with an alternate research approach (Skulmoski et al, 2007).

- TRIZ

It is a critical thinking technique focused around data and logic, not intuition, which quickens the task group's capability to take care of these issues imaginatively. TRIZ likewise gives repeatability, consistency, and dependability because of its structure and algorithmic methodology. "TRIZ" is the (Russian) acronym for the "Hypothesis of Inventive Problem Solving." G.s. Altshuller and his associates in the previous U.S.S.R. created the system somewhere around 1946 and 1985. TRIZ is a worldwide study of creativity that depends on the investigation of the examples of issues and results, not on the spontaneous and natural inventiveness of people or gatherings. More than three million licenses have been dissected to uncover the examples that anticipate leap forward answers for issues.

The three essential discoveries of this research are as takes after:

- Issues and resolutions are rehashed crosswise over commercial ventures and sciences. The order of the disagreements in every issue predicts the imaginative answers for that issue.

- Models of technical evolution are rehashed crosswise over commercial enterprises and sciences.
- Creative innovations use scientific effects outside the field where they were created.

The "General TRIZ Solutions" have been produced throughout the span of the 60 years of TRIZ research, and have been sorted out in numerous distinctive ways. Some of these are systematic techniques, for example:

- The perfect concluding Ideality and Result,
- Analysis, Functional Modeling and Trimming,
- Establishing the Conflicting Zones. (This is more recognizable to Six Sigma issue solvers as "Root Cause Analysis.")

- Surveys

Presser (1994) proposed the subsequent description for survey “any data collection operation that gathers information from human respondents by means of a standardized questionnaire in which the interest is in aggregates”.

Moreover, surveys are usually standardized in a way to ensure generalizability, reliability and validity to reduce possible bias during the research. From another viewpoint, a percentage of the focal points utilizing this procedure incorporate 1) its effectiveness for gathering data from a wide number of respondents and 2) its adaptability as in an extensive variety of data could be gathered. Then again, portions of the detriments utilizing this strategy are: 1) its reliance on subject's inspiration, trustworthiness and memory; 2) its mistakes because of non-reaction exist; 3) its low legitimacy with shut finished inquiries.

The most used survey techniques are the following: 1) Telephone surveys that have a response rate of approximately (40%-80%) and it is very suitable for international research. 2) Mail surveys which has as the principal disadvantage its low response rate between 5%-30%. 3) Online surveys that has a fairly good response rate (2%-30%) considering that the costs of using it are almost nil and the results could be obtained quickly. 4) Personal in-home survey that has a response rate between 40% and 50%, but its main disadvantage is its very high cost. 5) Street interviews involve intercepting people on the street who are interviewed on the spot. This technique has a response rate of 50%.

- Life-Story

The life-story technique ought to be viewed as an exceptional tool that permits researchers to look at and break down the subjective knowledge of people and their developments of the social world (Jones, 1983). This methodology helps researchers to comprehend the way people build their social activity by perceiving a few perspectives that researchers may not get a handle on from the gathered data. This methodology considers on the one hand that individuals have an implicit theory to account for action and on the other hand that researchers bring different theoretical theories to understand a phenomenon. The material and the way this is analyzed allow researchers to comprehend the social reality of individuals. The obtained results give a description of the form individuals define and interpret the contexts in which they live and the meaning their participation had for them. Among the most used techniques are the autobiographies, diaries and records.

- Diaries.

Bolger, Davis, and Rafaeli (2003), clarify that journals are intended to catch the little encounters of ordinary life that fill the greater part of our working time and involve the lion's share of our cognizant consideration. An essential profit of journal techniques is that they allow the examination of reported occasions and encounters in their regular, spontaneous connection, giving data corresponding to that possible by more customary outlines. Bolger et al. (2003) recommends that three wide sorts of research objectives could be accomplished utilizing journal plans: 1) acquiring dependable individual level data; 2) getting evaluations of inside individual change about whether, and individual contrasts in such change; and 3) directing a causal examination of inside individual progressions and individual contrasts in these progressions.

Event-based and time based designs and are the two most basic research plans utilizing the journals method. The previous are basically used to research inside individual methodologies, where the mixture of periods is a crucial variable and might be altered, arbitrary or a combo of periods. The last oblige members to give reports at each example that meets the researcher-established definition. This technique is most proper for investigations of particular classes of phenomena or courses of action. Bolger et al. (2003), said the accompanying strategies for social event information: 1) paper and pencil diaries, 2) enhanced paper diaries and 3) hand held and electronic data gathering. The primary system was the most punctual regardless is the most usually utilized methodology. The second system tries to tackle a percentage of the experienced issues with paper-pencil method, for example, genuine absent-mindedness and retrospection and unverifiable consistence. In this way, this procedure as opposed to depending on a member's auspiciousness or independently formulated strategies for overhaul toward oneself, auxiliary gadgets might be prearranged to sign arbitrarily or at settled periods, inciting research

members' reactions and soothing them of the need to stay informed concerning the proper events for reaction. At last, the third procedure started showing up in the course of the most recent decade and use handheld workstations (i.e., palmtop machines, individual advanced aides) outfitted with handcrafted poll programs. This last method has distinctive profits, for example, taking indicating, gives time-stamps for reactions, is adaptable in the presentation of inquiries, considers into record members' timetable and offers a significant development as far as information passage, accuracy and management.

- Social network

Granovetter initiated the relevance of networks in sociology in 1973. However, the importance of networks in management studies has grown significantly since the 90s. Among, the most named contributions during the 90s are: Powell, Koput & Smith-Doerr (1996) and their explanation about learning networks and Kogut (2000) who explained that the structure of a network is continuously generated by different rules that guide the cooperative decisions of firms.

Scott (1996) portrays social network analysis as an accumulation of systems for the dissection of social information. These relations could be interpersonal, monetary or political. Since the 90s the utilization of arithmetic and computer programs, for example, GRADAP, STRUCTURE and UCINET encouraged in a manner the dissection and depiction of social network and its structural relations (Scott, 1996). For example, the numerical methodology called chart hypothesis is a method for investigating the formal properties of such graphs, along these lines the utilization of this science permits researchers to develop formal models of social network. Along these lines, it is the utilization of this graph theory that permits researchers to measure such thoughts as the "separation" between two individuals, their relative 'centrality', the establishment of coteries and the "densities" of whole networks.

- Chat rooms and virtual communities

Chat rooms are sites where people interchange messages with another person or a group of people; these venues are directed by constraining who is permitted to talk or by having balance volunteers who look for problematic conduct. Talk rooms may be confounded with examination bunches or online gatherings, which are essentially diverse, since they don't occur continuously and are normally run over the World Wide Web.

Virtual communities are social groups that connect by means of Internet. In these communities the connection among participants could be either solid or powerless. Also, virtual communities have normally diverse levels of association and cooperation among their parts. This reaches from adding comments or labels to a website or message board post to contending with other individuals. Prof. Kim, A.J. has distinguished two various types of Virtual communities: (a) from one perspective, traditional online

communities that are more casual, for example, message sheets and talk rooms. (b) people-centric Virtual Communities that utilization apparatuses, for example, websites, texting pal records. The last is aggregating a massive measure of clients (80 million sites produced with just clients' substance) and prominence. Regularly, clients in virtual communities are frequently distinguished as Lead Users (von Hippel, 1988, von Hippel, 2005) and can hence in a perfect world coordinate into the advancement procedure of an organization.

- Data Logging

Information logging is the act of recording sequential data chronologically. Diverse operating systems and multitudinous computer programs incorporate information logging subsystems that give an administration to separating and recording log messages. This system permits analysts to comprehend the intricacy of logs. Since, these need to be subjected to logging dissection to understand them. Besides, the mixture of log documents from different sources with a watchful measurable dissection may expand the connections between apparently disconnected occasions on distinctive servers.

- Usability Testing

This system for grasping client's presumptions, intends to measure how well individuals can utilize the items or administrations for its expected reason. The principle normal for this strategy is that it concentrates on a specific item or little set of articles, though general human-machine collaboration studies endeavor to define all-inclusive standards. Along the usability test, the point is to watch individuals utilizing the item as a part of as reasonable circumstance as could be allowed, to find failures and ranges of change. Despite the fact that, Usability Testing appears like statistical surveying these are not comparative. From one viewpoint, gathering notions on an article or record is statistical surveying. Then again, convenience testing includes a controlled investigation to figure out how well individuals can utilize the item and likewise includes viewing individuals attempting to utilize something for its planned reason.

1.6 Quality and trustworthiness of the study

An essential apprehension in any examination study is to consolidate proper components that guarantee the scientist and the onlooker of the nature of the exploration, its process, and its discoveries. The suspicions and qualities of qualitative naturalistic request as an examination standard propose a set of criteria for establishing the quality. Emulating Guba (1981) and Lincoln & Guba (1985), this study tended to quality regarding dependability identified with his criterion:

- Credibility: Giving surety of reality estimation of the discoveries and pleasing the need to see, in an holistic way, a complex marvel.

- Transferability: Dealing with the pertinence of the discoveries, however recognizing that the exploration center is the idiographic (i.e., the particulars of the case) as opposed to the nomothetic (i.e., law like generalizations).
- Dependability: Giving surety of the routines and methodological decisions about the developing examination outline are recorded for outer assessment.
- Conformability: Giving surety of the neutrality of the scientist to create the degree to which the discoveries of a request are states of the request and capacity singularly of the respondents and not of the predispositions, inspirations, investment, points of view, thus for the benefit of the inquirer.
- Also regarding quality control and trustworthiness, it was the research goal to publish in several scientific journals and conferences the preliminary conceptual model, the pre-experimental case studies and the final case study findings to obtain peer reviewed feedback and critical comments that by itself constitutes and warranties of the methodology credibility and validation.

2 CHAPTER - MANAGEMENT, INNOVATION, CREATIVITY

In this chapter we discuss the connections between management, innovation and creativity that provide the basic conditions and organizational strutures that enablers IDEAS(R)EVOLUTION methodology to be implement with success. It is also our goal to state the necessary changes in a business organizational strategy, design and culture to empower the today's shift towards innovation driven organizations. Essencially we focus the main theories to which our methodology can act as "hands-on" approach to help the organizations to change. In the end we make the enfasys on the real need for managers to change from Heroic to Engaging managers and companies, open to innovation processes and creativity culture.

2.1 Management window

Management can never be called as a profession or science, but only a practice as a management is entrenched in the specific framework of a particular organization of any industry. People believing that they know everything about management are the people who only know how to manage nothing. Managing can only be learnt in the field of job, although practicing managers can gen extra benefits by availing programs that use their experience to develop their practice (Mintzberg, 2013).

The global economy is hindered, and the world is intensely alienated, indefensible and unstable (Tapscott, 2013). To find new solutions, everyone has to play their role; specifically, the new generation will need to turn these circumstances around. You will need to contribute to bring change in society, workplace and country (Tapscott, 2013).

Only settled organizations encounter a crisis. The crisis has a long time existence and the signs of the crisis are extensive. Productivity is twenty-five percent of 1965 levels. Innovation keeps on declining. Workers are dissatisfied. Customers are aggravated Brands are unscrambling. Executive turnover is speeding up (Denning, 2010).

A fundamentally different way of managing and organizing innovation has been discovered by specific firms; this discovery continuously increases the worth of their services to their clients and their goods. In few of the organizations, this radical approach to management has extended enterprise-wide, which generates incessant innovation in functions and processes as well as products. A primarily different way of organization, judgment, verbal communication and acting in the workplace is required to attain this objective.

At this time, "Leaders Everwhere" is the challenging concept (Hamel, 2013). Moreover, the basic idea of this thought is that we live in a world where leadership has never been so much necessary, but where leaders seems to be short in numbers quite often. It is a problem of organizational structures of those pyramidal structures that demand a large number of scarce and not enough of else (Hamel, 2013).

The current world is living in astonishing complexity of multifaceted organizations that just demands most from the people of up top. They do not have the intellectual multiplicity, the bandwidth and the time actually to make all significant decisions. There is a reason of delayed, rare and raging change in organizations (Hamel, 2013).

What meaning are we supposed to take, by knowing of present times, of recent books suggesting that management has been critically problematic? Management is a myth (Stewart, 2009). It has also been said that management has badly failed (Birkinshaw, 2010). Furthermore, it has also been said that management is near to its end (Murray, 2010). While it has also been said that management has already died (Owen, 2011).

It has been discussed that management was initially introduced to resolve two problems: firstly, getting employees of mediocre experience to perform monotonous jobs capably, attentively and capably; secondly, organizing those efforts in such a way that would enable intricate goods and services to be produced in large numbers. In a nutshell, the solution of the problems of effectiveness and range was bureaucracy; the solution was ideal because of its tumbling goals, hierarchical structure, accurate role definitions and elaborative policy and measures. To tackle with the future problems, it is imperative to equip the organizations with management revolution of a kind which revolutionised modern industry (Hamel, 2013).

Present-time's management practices correspond to a set of social, political and economic exertions of the first order (Friedman, 2010); these are improbable to be solved by a single strategy, such as acquiring more employee buy-in, or instilling a sense of exigency or introducing new technological stages (Denning, 2010).

The following five primary and interdependent shifts are badly needed to occur for revolutionising management (Denning, 2010):

- The first shift originates from an enormous changeover in the power balance among buyer and seller: to management's amazement, the buyer is now authoritative. In result, the organization's **goal** has to shift to one of **delighting clients**: such as a move from inside-out ("You take what we make") to outside-in ("We search for understanding your troubles and will astonish you by resolving them").
- The second shift originates from the first alteration, as well as the epochal evolution from less experienced labor to knowledge work. Just like previously explained about astonishment of management, conventional chain of command suddenly does not work any longer. The **role** of the manager has to move from performing as an organizer to an **enabler** so as to release the energies and abilities of those doing the work and eliminate obstacles that are making a hurdle to work.

- To sustain and support those shifts, three other shifts are essential.
- The **mode of coordination** moves from sorted out administration to dynamic joining, that is, as it were, of eagerly connecting self-accomplished learning work to the moving needs of charming customers.
- There is a change from the quality to **values**; that is a change from a determined point of convergence on the monetary esteem and boosting productivity to ingraining the values that will make modernization and extension for the association over the long haul.
- **Communications** move from Request to **Conversation**: that is a move from top-down cooperations including generally various leveled orders to interchanges made up for the most part of grown-up to-grown-up examinations that intention inconveniences and create new discernments.

For a few years every above stated shift has been followed independently in some organizations. However, at the time of any of these shifts being followed on its own, it is likely to be indefensible because it clashes with the pruposes, approaches and rehearsals of conventional management. Thus, the five shifts are mutually dependent.

At the time of undertaking five shifts all together the result brings supportable change that is fundamentally more fruitful for the organization, more amiable to innovation, and more fulfilling both for the employers and the employees (Denning, 2010).

2.1.1 Shift: From inside-out to outside in

Conventional management has faced problems, not because managers are not capable of managing anymore, but rather the reason is that the world has transformed, and management practices are still the same (Denning, 2010, Hamel, 2009, Mintzberg, 2012). Tranformation of power from seller to the buyer is one of the vital changes in the marketplace (Tofler, 2006, Li, 2010). Not more than five decades ago, large organizations were fundamentally in control of the entire marketplace, but it can not be said for the present times. The arrival of worldwide competition, customers' acknowledgement to reliable information and the ability to correspond with one another has intended that the customer is in charge now (Aaker, 2012; Li, 2010; Prahalad, 2008; Solis, 2012; Leafbeatter, 2011).

To succeed in this situation of marketplace the case that determines must shift from an inside-out perception, we build it and you obtain it, to an outside-in perception, we look for understanding your troubles and will astonish you by resolving them. The particular shift exceeds further than the firm being more attentive to customer service: it means adjusting everyone and everything in the organization to quicker provide more importance to customers (Denning, 2010).

Peter Drucker prefigured this shift in 1973. The definition of business purpose was described as it is dependent on the customer to determine what a business is, and it is also the basic strategy to create

customers. The factor which converts the economic resources into wealth and things into commodities is nothing else but the customer; customer is the foundation of business and the only key factor to prosper the business (Drucker, 1973).

The customer was the only priority of any organization in 1973; to have someone to pay for the goods, or the services were the only desire. In recent time's more rigorously competitive market, having a customer to keep the firm existence is not the key factor anymore as there are many more factors involved now. The key to a stable future is to have a customer who is eager to get goods and services not for today only, but also for tomorrow. It is not about a single deal; it's about creating a ***relationship***. The customer must be submissively pleased to attain this goal (Kawasaky, 2011).

Birkinshaw (2012) differently described the shift, but still the basic idea is to relate the shift with an outside-in perspective. The organization must please the customer (Denning, 2010; Kawasaky, 2011). In some other perceptions, the firm should assure to deliver joy (Hsieh, 2010) or even happiness (Conley, 2007). In the real meaning, it is described that the firm should do much more than just meeting the expectations of the customer; the firm must produce a permanent flow of new value to its clients that surprises them by meeting requirements (needs) that customers may not even know they had.Time is also taken as an important aspect: if goods and services can be brought to the customer sooner, it is more probable to generate happiness (Hsieh, 2010). The goal of the organization precisely reflects the primary transformation in the power structure of any particular marketplace; it can also be designated as a transition from shareholder capitalism to customer capitalism (Martin, 2009).

In this standpoint, the intention of the firm prioritizes the client rather than making money for shareholders. The firm generates revenue, but this is the effect of satisfying the customer. When the firm intends solely to make money for its shareholders, it draws itself towards doing very same thing that leads towards losing the money for shareholders in a medium term. As Birkinshaw (2010) states, the principle of obliquity (Kay, 2010) effects: an indirect objective (satisfying of making clients happy) is more appropriate to generate revenue than a direct focus on money making.

The goal to continuously generate more value for customers is not of only the CEO or the marketing division; it turns into the operational objective of every single person in the firm (Hamel, 2012; Amabile et all, 2011).

According to Denning, there are ten principles to please and satisfy customers:

- **Commit:** It is the duty of every person and everything in the system to delight clients by providing values quickly rather than just the duty of the CEO or the marketing department. All working units and teams must have a clear objective as to what they are achieving in

terms of pleasing and satisfying clients. Thus, the entire system and all the processes in the firm must be determined on boosting client's satisfaction and delight.

- **Target:** Recognize the central part of your market of main clients: you will have a flexible client base by just pleasing this particular group. In the pursuit of satisfying everyone guarantees standard products and services that will not please of satisfy anyone.
- **Focus:** Focus on the easiest possible thing that will please customers. There is no need to load products with useless features that people would not use; it will only make the product complicated to use.
- **Read their minds:** Meet buyers' unknown needs. The people were not demanding from Apple to manufacture cool-looking MP3 players or organize a cheap and easy way to download music online. The world did not know that it wanted iPods or easy music download services until Apple manufactured them (Conley, 2009).
- **Innovate in stages:** Introduce the prduct by meeting the desires of primary customers, and then add the other features through frequent upgrades.
- **Evaluate:** Do not just keep on adding features. Meeting every customer desire can lead to a death twist. The product can become undesirable or unusable if the desires of every customer are met. Make is assure that each upgrade really satisfies and pleases.
- **Customize:** Harley-Davidson aims to accomplish the utmost desires of the customers through motorcycle experience rather than just manufacturing unfailing motorcycles. The company will help to everything in this regard; even if that means to go further than the signature full-throated roar of Harley and to allow the Harley proprietors to adorn their motorbikes with grassroots folk art.
- **Partner with customers:** Companies can improve the pleasure and satisfaction level by associating with customers. For example a division of Weyerhaeuser known as Quadrant Homes does not build homes and then aim to sell these homes, Quadrant sells homes before building them and seeks buyer's guidance in each step of the design. The customer can choose from various floor plans and footprints. This results in a very high demand in a relatively weak market along with strong word-of-mouth publicity.
- **Empower:** Make sure frontline workers have the supremacy to make decisions on the spot to please and satisfy clients, and that problems are getting solved quicker. Every person in the firm must be enthused to think the entire day and each day: what can be done to offer supplementary and quicker value to the client?
- **Measure:** You cannot manage anything without measuring it, and customer satisfaction is also included in it. In nearly all circumstances, raising the question: how probable is it

that you would advise this particular product or service to an associate or friend provides a precise interpretation on whether the client is being pleased or not (Reichheld, 2006).

2.1.1.1 New job for managers: from controller to enabler

Attempting to perpetually gathering new esteem for clients requests a change in the way exertion is made, in light of the fact that a tried and true organization was not proposed for modernization or satisfying customers. It was planned to manufacture dependable execution from generally unpracticed representatives. This is the motivation behind why diligent work by customary administration to enhance client center have inclined to battle (Denning, 2010; Amabile, 2011; Hamel, 2012). The other is that as work increasingly became knowledge work, bureaucratic practices undermined a key ingredient of productivity: worker morale (Amabile, 2011).

The organization must authorize those doing the work to smooth the progress of collaboration, which will reach the new level of performance, modernism and quick learning (Tapscott, 2013). The result is a spectacular budge in the role of the manager to enabler from controller. The managers are answerable to those doing the work and for eliminating any obstructions that are holding back the work, instead of the workers to report to the managers. This reversal of polarity recognizes that the engine of productivity, innovation and creativity resides in the energy and ideas of the people doing the work, working together across boundaries, drawing on new technology, to become more productive and innovative. Facilitating talent unchains enthusiasm and energy (Hamel, 2012; Amabile et all, 2011; Li, 2010). All of it means that managers must motivate, encourage, support teamwork and make the workplace meaningful (Amabile, 2011).

The language used to coherent the new function of managers is diverse and comprises: scalable knowledge and association through open pull podiums in which people are motivated to get access, draw resources and produce (Hagel et all, 2010) “networks of self-organizing teams” (Denning, 2010), “putting employees first” (Nayar, 2010) “autonomy” and “intrinsic motivation” (Pink, 2011), "design thinking" (Brown, 2010; Martin, 2009; Neumeier, 2010), “distributed, democratic, self-managing” (Li, 2010), “empowerment” (Bernoff, 2010). In spite of the dissimilarities in terminology, the general idea of all these authors is the thought of mobilizing the energies and aptitudes of employers so that they develop into more industrious, more imaginative, more concerted and more able to learn and innovate rapidly.The raison d’etre for the very existence of the firm budges from the diminution of transaction expenses behind walls and rigid control to scalable association erudition and innovation.

2.1.1.2 New coordination: from bureaucracy to dynamic linkage

One of the immense accomplishments of the modern organizations was well-organized implementation with scalability. Large numbers of employees could work collectively and attain constant results. Through the use of detailed strategies, policies and processes, management precised both the objective and the techniques for attaining that objective which is to be attained; development is methodically followed by reports to managers, so that any divergence could be recognized and if necessary chastised.

In present time's place of work, this guides to numerous main problems. First, bureaucracy is intrinsically demotivating, and in knowledge work, motivation is the key to efficiency (Pink, 2010; Amabile, 2011). Secondly, this strategy to work is not good for innovating in the world in which innovation is crucial (Grupta, 2010; Hamel, 2010). Third, bureaucracy is not supple enough to satisfy and please clients, handle social media or regulate to the quicksilver changes in present time's marketplace (Denning, 2010). As a result, hard work by organizations to develop into more customer-focused or to establish independent teams lean to come undone, when they face the bureaucratic processes of coordination used by conventional management (Amabile, 2012).

To interconnect the hard work of independent teams and customer focus while also attaining the well-organized implementation, necessitates a set of methods that might be called "dynamic linking" (Denning, 2010). The process started in automotive organizations in Japan, which, later on, developed most fully in software improvement with advancements known as "Agile" or "Scrum" (Hauser et al, 1988).

There are several means of "Dynamic linking": (a) the work is performed in small cycles; (b) the management puts the objectives of the work in the cycle, based on what is recognized about what might please the client; (c) judgments about how the work should be performed to attain those objectives are largely the responsibility of those performing the work; (d) development is calculated (to the amount possible) by direct customer feedback. The most absolute articulation of the exercises of active linkage in software expansion is set out by Cohn (2009), and as applied to common management by Denning (2010) radical management approach.

To flow the knowledge and to begin the learning process for the teams to perform better and faster, it is important setting things up in undersized, uninterrupted waves of effort, iterations that promote profound, trust-based relationships among the participants. Despite trying to identify the actions in the processes in immense detail, specifying what they want to come out of the procedures, providing more room for individual contributors to experiment, is more significant (Hagel &Davidson, 2010).

2.1.1.3 From value to values

Given its objective of generating revenue or making money for shareholders, the conventional organization was lost in thought with value, rather than values. Given its objective of generating revenue or making money for shareholders, the conventional organization was lost in thought with value, rather than values. value suggests a meaningful judgment of existing or probable worth never too isolated from monetary equality. Every value is a dollar value. The plural, 'values', is dissimilar from its opposite, 'value'. Values are assessments not of merit, but of worthwhileness. Unlike value, talk of values disregards money; it proposes on eternal appraisals instead of temporary ones. There is a profound quality to values. If value is what makes us rich, values, we suppose and regularly declare, are what make us the human being (Smith, 2004).

In the conventional organization, a fixation with value expectant firms to cut costs and eradicate the things that are essential to compose the future and instead to follow "bad profits", i.e. profits made at the cost of loosing customers. Such strategies are unsafe in today's world: when customers is acknowledged about everything of the company, the augmented lucidity has efficiently altered the rules of business everlastingly.

When the firm's objective swings from generating revenue for shareholders to offer more value to clients, there is an essential swing from a fixation with **value** to a fixation with the **values** that will cultivate the business by generating modernism and customer happiness.

The need for dependable observance to values that are associated both with pleasing the client and inspiring independent teams, radical lucidity and permanent development, faith, sincerity, helpful for the environment and broadness to accept outside ideas (Li, 2010; Denning, 2010; Hagel et all, 2010; Aaker, 2010, Gerzema, 2011; Haque, 2011; Gulati, 2009).

There are two main issues regarding this shift:

- Radical transparency - Radical transparency is essential for continuous innovation both within the team and management and among the team participants as well. The things to achieve this are:
- Set real-time information internal and externally
- Set main concerns at the commencement of each work cycle
- Embrace both sided accountability
- Continuous self-improvement:
- **Embrace incessant improvement:** Unlike conventional management that is supported by procedures aimed at manufacturing the same products, a primary supposition of the reinvented firm is that the improvement is eternal. The work can always be enhanced;

no matter how well work is proceeding. Hence, there is nothing like "best practice": every process can be improvised for betterment.

- **Give acknowledgment for recognizing obstructions:** Unlike a bureaucracy, where people are penalized for pointing out obstructions, or a learning firm where people are given incentive for discovering solutions, the reinvented organization rewards and appreciates the recognition of obstructions, even when no there is not even a single visible solution.
- **Line up the team's interests with the organization:** If a team is worried that any reserves it generates will result in workers layoffs, and then the team is improbable to make improvement towards recognizing inefficiencies, eradicating tasks, or reforming needless processes. The knowledge in lean manufacturing is that it is fundamental to have a strategy in which savings are arranged for superior products, better price, and better service rather than layoffs.
- **The team calculates its own speed of work:** The team sets up its velocity for each work phase or cycle and studies how much work, that attaches value to clients, can achieve during a specified period of time. This allows the team to know whether its course is getting better, idling, or worsening. Rather than the useless strategies of conventional management, radical management utilizes lucidity to encourage the self-organizing team to grow toward high performance. The team is not rivaling with other teams or reacting to administrative goods from above. Instead, the team can see how it is going, can see obstructions being removed, and can inspire to do even better.
- **Fix problems straight away:** Given Toyota's discovered that the price of not fixing problems is massive, main concern should be of finding mistakes before time and fixing them right away—even discontinuing the entire production line to attain this. It is also critical to understand root causes of problems, rather than eliminating signs.
- **Share, rather than implement, enhanced practices:** Knowledge is stretched across as a chance to get better, not as a top-down orders to implement. Knowledge about practices is understood as a temptation to discover their applicability and adapt ideas to the team's own situation. Sharing is promoted in straight communities of practice. Such societies or communities raise opportunities for people encountering parallel challenges to meet, physically or electronically, and share relevant experiences and learning.
- **Support openness to outside ideas:** Radical lucidity within the organization is imperative, but it's not sufficient. The best organizations depict themselves to outside thoughts. Crowdsourcing is methodically practiced. Being ready to listen and think about

the possibility that one's strongest ideas are wrong necessitate an open state of mind, rational inquisitiveness, and kind of serious liveliness. Unlike the harsh and severe situation of the conventional workplace, laughter is a enveloping characteristic of the new workplace.

Management in the 21st Century wants a swing in the mode of communication from the order to discussion, with adult-to-adult contacts, human to human, using stories, descriptions and open-ended questions. Genuine leadership storytelling has a vital role to play, mainly in dealing with social media. The swing of communication form is mostly discussed between academics (Li, 2010; Aaker, 2011; Denning, 2010; Solis, 2010; Cesvet et al., 2011).

Customers will never be pleased delighted if interactions with the organization consist of indifferent one-way messages. Instead, interactions and communications need to follow the form of societal norms, reacting openly, paying attention, with genuine stories, metaphors and open-ended questions (Solis, 2010).

- **Use genuine storytelling to arouse a passion for delighting or pleasing clients:** For the dominant part of organizations, the over four expressed movements request a respectable adjustment in project regularly an essential movement in human advancement or society. This would not happen without persuading authority narrating stories that show how different organizations have finished it and stories about how it is now happening inside the association (Guber, 2011).
- **Perform deep listening:** Profound listening to stories both outside the association with clients and inside the association with representatives offer the components for enduring connections. Inside the limits of association, workers discover what is wonderful in one another. Outside the association, as clients figure out that the firm have got genuine individuals who compare truly, the base for a relationship could be laid.
- **Know the customer's story:** The movement from assembling merchandise and administrations to relationship of groups that please customers rapidly, all the more frequently, and all the more strongly can just happen if groups performing the work recognize the client's story. This story ends up being the crude material from which theories could be inferred about the things which may satisfy the customer.
- **Demeanor valid conversations with customers:** Instead of screening the customer as a person to be manipulated with messages that "manufacture demand", the firm systematizes itself to demeanor valid conversations with customers, whether via social

media as discussed by Li (2010) in Open Leadership or in call centers that truly seek out to turn customer troubles into customer satisfaction and delight.

- **Arrange user stories as catalysts for conversation:** User stories are not relic or orders or commands. They are chances to demeanor a conversation between the client and the workers. The point of the conversation is to deepen indulgent as to what might please the client.
- **Organize stories to improve individual performance:** Carrots and sticks do not inspire experienced workers. Instead, expert leaders look for discovering what forces people into action and then attach that to the objectives of the team. The sharing of stories can help to generate needed understanding, joint admiration and faith.
- **Use stories to improve team consistency:** Groups widen an understanding of identity from three chronological stories: the story of our past that who we were, the story present that of who we are now, and the story of future that who we are going to be. Having groups execute this amalgamation of stories corresponds to both themselves and others what they have in familiar and why they might change into a high-performance group.
- **Use stories to motivate high-performance teams:** Telling stories about victorious high-performance teams in other parallel organizations can arouse the narrative imaginations of the team members and show how that the knowledge can be followed.

"Alignment" is the bottom line. Not even a single of these shifts is new; the only thing new is to putting all these shifts into process at once (Denning, 2010).

The programme of five immediate shifts is arduous, but it presents noteworthy benefits. If it is executed well, it produces concurrently high output, incessant innovation, well-organized execution and utter job satisfaction including client satisfaction and delight (Denning, 2010).

Lastly, the achievements are attained by a conversion to a focus on people from focus on things - a persons-centered objective, a persons-centered task for managers, a persons-centered harmonization mechanism, persons-centered principles and persons-centered communication (see Table 1). Are we supposed to be astonished that the current Century is not about things, but about people (Denning, 2010).

Table 1 - Traditional versus radical management

	Traditional Management	**Radical Management**
Goal	The purpose of work is to produce goods or services.	Focus work on delighting clients.
How work is organized	Work is done by individuals reporting to bosses.	Do work through self organizing teams.
Plan	Work is done in accordance with a comprehensive plan.	Do work in client-driven iterations aimed at continuous innovation.
Measuring progress	As work proceeds, provide progress reports of what is under way.	Deliver value to clients each iteration.
What is communicated	Communications cover what people need to know.	Be totally open about impediments to improvement.
Improvement	Bosses are responsible for productivity	Create a context for continuous self-improvement by the team itself.
How it is communicated	One-way communication: send people messages, and tell them what to do.	Communicate interactively through stories, questions, conversations.
Principal focus of competition	Cost reduction: economies of scale, downsizing, outsourcing.	Time: deliver more value to the client sooner.
Consequence	Rates of return on assets steadily decline. Innovation is stunted. Four in five workers are not fully engaged in their jobs. Customers receive average products and services.	Continuous innovation: selforganizing teams normally evolve into highperformance teams, focused on delighting clients, with above-average productivity and deep job satisfaction.

Source: Denning (2010)

2.1.2 Focus on people – Work enhancing progress principle

The main thing is generating the circumstances for immense inner work life – the circumstances that promote optimistic emotions, strong inner inspiration and encouraging perceptions of co-workers and the work itself. Immense inner work life is about the work, not the appurtenances (Amabile & Kramer, 2011).

It begins with providing people something significant to achieve, like Google's mission "to organize the world's information make it universally accessible and useful."

It asks giving obvious objectives, independence, help, and resources – what people require to achieve real development in their daily work. It also depends on expressing admiration for ideas and the people who generate them. In other words, the secret to an astonishing performance is authorizing talented people to be successful at important work (Amabile & Kramer, 2011). An inner work life marked by delight, profound management in the work, and thirst for creativity (Amabile, 2010).

As we have seen, several authors consider that management is very hard to practice and critically important as well (Amabile & Kramer, 2011); but managers or leaders are vital to successful organizations

because they provide a influential positive force behind employees' inner work life. It has been discovered through researches that people are more imaginative and dynamic when they are intensely busy in the work, when they feel pleased and when they think extremely of their missions, colleagues, managers, and organizations (Amabile & Kramer, 2011). When people consistently take pleasure in positive inner work lives, they are also more dedicated to their work and more probable to work better with co-workers. In short, work-related psychosomatic advantages for employees decode into performance advantages for the company.

It is possible to untie the secrecy of what actually influence the workplace inspiration only by considering the people stories behind inner work life: what actually takes place to alter people's opinions, thoughts, and drivers as they try to resolve multifarious issues inside companies? It is realized that, in inquisitive inner work life, we might also find out what actually brings the difference between organizations that fail to pull off these achievements and those that do not (Amabile & Kramer, 2011).

Some researches revealed what made the difference (Amabile & Kramer, 2011):

- Inner work life is a well-off, versatile phenomenon.
- Inner work life persuades people's performance on four proportions: imagination, output, work obligation, and collegiality. It is called inner work life effect by the authors.
- Inner work life depends on the managers of companies because, no matter how sparkling a company's policy might be, the policy's implementation depends on a great presentation by worker inside the organization.
- Inner work life is intensely prejudiced by events happening every day at work.
- Inner work life affects employees deeply. The evidence to this is the amazing contribution of the volunteers in our study, who finished the diary for the day after, for no more recompense than the insight they would achieve into themselves, their team's work and their work.

In addition to enlightening how much inner work life means to workers – and thus to organizations– the study turned up an additional; a deeper level of sense, relating to events that are part of everyday, total of three types of events – key three – show up as mainly powerful forces behind inner work life, in this order:

- Development in significant work;
- Catalyst (proceedings that straightly help plan work); and
- Nourishes (interpersonal proceedings that strengthen the people doing the work).

The dominance of development among the keys three influences on inner work life are called as the progress principle: of all constructive events that persuade inner work life, the single most influential is **progress in meaningful work** (Amabile & Kramer, 2011).

2.1.3 Creating Shared Value

Organizations remain ambushed in an obsolete approach to assess the creation that has appeared over the past few decades. They keep on viewing value creation scarcely, optimizing short-term financial recital in a fizz while omitting the most significant customer desires and disregarding the broader persuasion that decide their longer-term success. What could be the other reason to neglect the welfare of their customers, the lessening of natural resources imperative to their businesses, the feasibility of key contractors or the economic suffering of the communities in which they manufacture and sell? What other reason could be for the companies to think that changing activities to locations with lowest wages of all the times was a feasible solution to bloodthirsty challenges?

Companies must lead from the front to bring society and business back together. The acknowledgment is there is amongst refined business and thoughtful leaders, and potential elements of a new model are up-and-coming (Porter & Kramer, 2011). However, we still require a general framework for directing these hard works, and nearly all companies stay stuck in a "social responsibility" state of mind in which communal issues are at the edge, not the core. According to Porter and Kramer (2011) the solution lies in the code of mutual values, which engages generating economic value in such a way that also generates value for humanity and society by concentrating on its requirements and challenges. Businesses must re-connect the success of the company with social development. Shared values are not social liability, charity, or even sustainability, but a new way to attain economic triumph. This thing can give ascend to the next main revolution of business thinking (Porter & Kramer, 2011).

Companies can produce economic value by generating societal or communal value. According to Porter & Kramer (2011), there are three individual methods to do this:

- **By re-visualizing products and markets** – The needs of the society are huge—healthiness, better accommodation, improved nourishment, help for the old, greater economic security, less ecological damage. Debatably, they are the maximum unmet needs in the worldwide economy. In the business, we have spent years learning how to manufacture demand while omitting the most significant demand of all. Many organizations have lost vision of that most basic questions: Is the product fine for our clients? Or for our clients' customers?
- **By redefining productivity in the value chain** – The value chain of a company unavoidably affects—and is affected by—frequent societal and communal problems, such as a natural reserve and water usage, physical condition and security, working environment and equivalent behavior in the workplace. Chances to generate mutual

value take place because societal and communal issues can produce economic expenses in the firm's value chain.

- **By building compassionate industry clusters at the location of the company.**- There is not even a single company which is self-contained. The achievement of every organization is affected by the other organizations and infrastructure around it. Output and innovation are powerfully inspired by "clusters," or geographic deliberations of firms, linked businesses, supplier, service giver and logistical infrastructure in a certain field. Clusters do not only include businesses, but institutions such as educational programs, trade associations, and other organizations as well.

Each of these methods is a part of the righteous circle of shared value; making value better in one area gives ascend to opportunities in the others.The idea of mutual value resets the limits of entrepreneurship. By linking companies' in a better way for societal development, it opens up a lot of methods to provide new needs, achieve efficiency, generate discrimination and increase markets. The skill to generate shared value relates equally to superior economies and under-developed countries, though the certain opportunities will differ. The opportunities will also differ noticeably across organizations and firms—but every firm has them. And their array and range is far widened than has been acknowledged (Porter & Kramer, 2011).

Even the most advanced companies following shared value today are short of the data needed to optimize results. Companies are unable to know the limit to which they are producing shared value if they do not calculate their exact development on social objectives and, prominently, the extent to which social performance progresses economic value for the business. At the time, When companies finds it unable to understand or thoroughly follow the interdependency between business and social results, they fail to spot significant chances for improvement, enlargement, and social impact of the range (Porter et all, 2012).

Links between social and business results are fundamental to unlocking shared value for organizations and scalable resolutions to social issues. Efficiently calculating shared value starts with a professionally developed shared value plan. To Porter et all. (2012), to create such plan, organizations must:

- Identify main social problems to focus on;
- Plan the pertinent business actions involved;
- Model predictable business and social benefits relative to probable costs.

Shared values calculations, in turn, evaluates development and results, creating actionable data and observations to purify shared value plans (see table 2). Data and observations from calculating shared value allow organizations to scale shared value proposals while also providing a crucial basis for efficient communication with the investment community (Porter et all, 2012).

Table 2 - Level of Shared Value Illustrative Business and Social Results

LEVELS OF SHARED VALUE	BUSINESS RESULTS	SOCIAL RESULTS
Reconceiving product and markets: How targeting unmet needs drives incremental revenue and profits	• Increased revenue • Increased market share • Increased market growth • Improved profitability	• Improved patient care • Reduced carbon footprint • Improved nutrition • Improved education
Redefining productivity in the value chain: How better management of internal operations increases productivity and reduces risks	• Improved productivity • Reduced logistical and operating costs • Secured supply • Improved quality • Improved profitability	• Reduced energy use • Reduced water use • Reduced raw materials • Improved job skills • Improved employee incomes
Enabling cluster development: How changing societal conditions outside the company unleashes new growth and productivity gains	• Reduced costs • Secured supply • Improved distribution infrastructure • Improved workforce access • Improved profitability	• Improved education • Increased job creation • Improved health • Improved incomes

Source: Porter et all (2012)

According to Porter and Kramer (2011), an incorporated shared value plan and measurement procedure comprise four steps. Strategic priorities enlighten the focus and degree of shared value measurement; the data and observations from shared value measurement notify the modification of the shared value plan. This continuing feedback cycle (see figure 17) is one of shared values measurement's essential advantages – providing a roadmap for unlocking and understanding additional shared value formation (Porter et all, 2012):

Step 1: Recognizing the social problems to aim is recognizing and prioritizing certain social problems that symbolize opportunities to augment returns or decrease costs. This necessitates a methodical screening of unmet social desires, spaces and an examination of how they overlie with the business athwart the three levels of shared value.

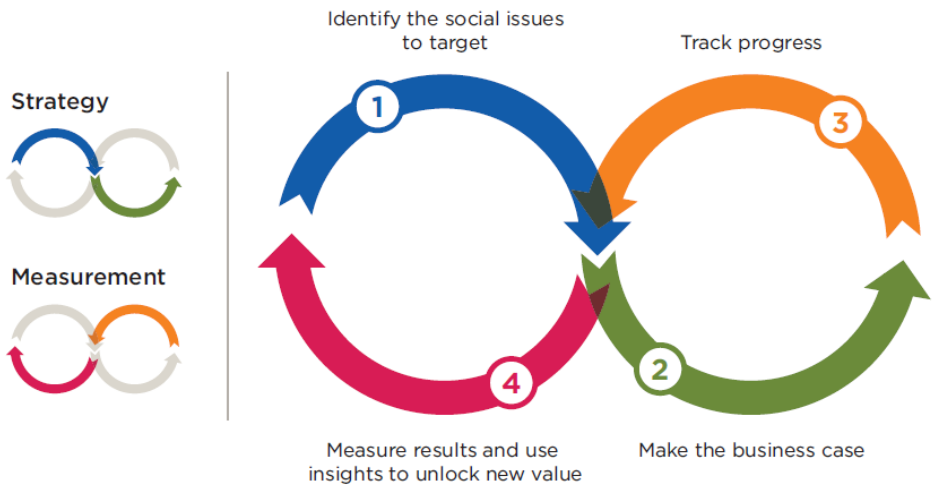
Step 2: Making the business case is to make a firm business case based on analysis and research of how social development will straightforwardly develop business performance. This step includes recognizing the targets and identifying the tricks and expenses involved for every shared value

opportunity, modeling the possible business and social outcome relating to the expenses (i.e., value creation potential), and thinking of a go/no-go choice.

Step 3: Track progress is companies track progress against the required targets by utilizing the business case as an explanatory roadmap. This step consists of following inputs and business actions, productivity and financial performance (income and expenses) relating to projections.

Step 4: Measure results and use observations and insights to unlock new value, this step consists of validdating the predictable link among social and business results and understanding whether the outlay of business capital and hard work created a good joint return. Observations and instruction from this analysis will enlighten opportunities to unfasten further value formation through improvising the shared value plan and implementation. For example, if an organization's community jobs skills program ends up in synchronized job formation and growth of its market, it should inquire how it could enlarge those sturdy program rudiments to additional advantage for the company and societies.

Figure 17 - The Process of Shared Value Measurement



Source: Porter et all (2012)

2.1.4 Companies as Communities

According to Mintzberg (2009), underneath the existing economic disaster lies another disaster of extreme superior scope: the depreciation in organizations of community — Human being's sense of belonging to and helpful for something superior than their own selves. Especially in the United States years of short-term management have overblown the significance of CEOs and condensed others in the corporation to fungible goods—human resources to be trimmed down at the fall of share cost. The result: tedious, irresponsible behavior that has fetched the international economy to its limits. Organizations

require to re-engage their workers. The practice of management and as well as leadership desires to be rethought (Mintzberg, 2009).

Individuality is a good idea. It offers inducement, endorse leadership, and supports expansion—but it is not independent. Human beings are social animals who cannot perform efficiently without a community that is superior to ourselves. The social glue sticks us together for the superior thing (Mintzberg, 2012). Community and society mean being caring about our employment, our co-workers, and our place in the world, geographic and otherwise, and in turn enthused by this caring.

Mintzberg anticipated the term "Communityship", which is not a word of English language. But, according to him, it should be to place among individual leadership on one side and communal citizenship on the other. He states further describes that he believes that people should never use the English language word "leadership" without talking about communityship. There is no doubt in the fact that leaders can connect and engage others, but the idea remains attentive on the individual—on personal scheme.

Communityship surely uses the leadership in true meanings, but not the self-centered, "heroic" kind that has grown to be so common in the business world. It has been said that people create a chaos these days about the problems of micromanaging—managers' interfering in the dealings of their subordinates. On the contrary side, "macroleading" is much more serious: the practice of top-down influencive power by out-of-touch leaders. Communityship demands a more diffident form of leadership that might be called occupied and spread management. A community leader is himself engaged in order to appoint others so that anybody and everybody can practice initiative (Mintzberg, 2009). Mintzberg argus "It might be the time wean ourselves from the daring leader and identify that generally we require just sufficient leadership — leadership that arbitrates when appropriate while heartening people in the company to get used to things.

It is unfortunate that many of articles and books on how to handle large-scale transformation—change, renaissance, turnaround to be paying attention to leadership (Mintzberg, 2009). There are eight stages of changing leadership: First setting up a sense of necessity. Then creating an influential guiding alliance.This alliance should make the vision and transmit it so that others are authorized to carry it out. The procedure shifts on to setting up short-term wins, merging improvements, and institutionalizing new understandings (Kotter, 2007).

The approach of Kotter (2007) sounds sane enough and has most likely worked. But how frequently, and for a long time? What would happen when the lashing leader leave? Maybe it is the time to reconstruct companies not from one end to other, but from the center out—all the way through teams of middle managers who tie together and bring key changes in the organization. Is it possible to begin

huge transformation like this, nearly impulsively, with little actions by people who are not connected to the senior leadership? (Mintzberg, 2009).

Most sustainable developments in society happen when people find out their own power to act, when people stop waiting for experts or leaders to do something, and make a decision that they can regain what they have handed over to others (Block, 2009).

A person can think of all managers as citizens of their organization.

How to get from the company as a compilation of human resources to the organization as a society of human beings—from daring leadership to affianced management? According to Mintzberg (2009), there are a few lessons (see table 3):

- **Community building** in an organization may start with small teams of dedicated managers. Peter Block (2009) cites proof that small teams are more efficient than great management or personal preparation in creating tough communities.
- **The sense of community** originates as the managers in these particular groups respond on the experiences they have shared in the company. Managing is getting more frantic than ever, and the heaviness of the workplace barely support thoughtful action.
- **The insights generated** by these indications automatically activate small proposals that can grow into big plans. People love o think of plans as prepared intentionally at the crest to be implemented below. It has been found through research that organizations study their way into attractive plans and strategies through small schemes that occur from the proposals of all sorts of people (Mintzberg, 2009). Particular managers within an open pecking order in contrast may be superiorly located to make the key relations between operations and plans or strategy.
- **Commitment becomes contagious** when people understand its enormous advantages not only to the company but to themselves as well. Ther is no doubt in the fact that dispersing such teams across the organization necessitates the support of the upper leadership. Without it, hard work in communityship seldom prospers.
- **An organization knows that communityship** is steadfastly created when its members stretch out in socially vigorous, dependable and mutually advantageous ways to the broader the society and community. Put in a different way, strong organizations take corporate social duty seriously and achieve momentous benefits in exchange. Employees of a firm that scarcely functions as a society or community can barely be projected to care about any other society or community. But members of a firm that has a vigorous sense of community understand how much their company depends for

continued success on productive engagement with the societies and communities around it.

Table 3 - Heroic versus Engagement Manager

Heroic Leadership	Engaging Management
Managers are imperative people, fairly different from others who manufacture products and provide services	Managers are imperative to the degree that they assist other people to be imperative
The higher "up" these managers reach, the more significant they become. At the "top," the CEO is the corporation	An organization is an interrelating network, not an upright hierarchy. Valuable leaders work the whole time; they do not take a top seat
Down the hierarchy comes the policy – obvious, purposeful, and daring – originating from the chief who takes the spectacular acts. Everyone else "implements."	Out of the network come out policy as busy people resolve little issues that grow into big proposals.
Execution is an issue because while the chief accepts change, most others oppose it. That is why outsiders must be privileged over insiders	Execution is an issue because it cannot be estranged from formulation. That is why dedicated insiders are essential to oppose ill-considered accusations forced from above and without
To administer is to make choices and assign resources – including those human resources. Therefore, Managing means examining, often measuring, based on facts, from information and reports	To manage and administer is to fetch the energy that subsists naturally within human beings. Therefore, managing means engaging, based on decision, entrenched in situation
Incentive for growing performance goes to the leadership. What matters is what's calculated or measured, shareholder worth specifically	Incentives for building the company a better place go to everybody. Human values matter, only the minority of which can be calculated or measured
Leadership is plunge upon those who plunge their will on others	Leadership is a consecrated trust received from the respecting others

Source: Mintzberg, (2013)

2.2 Innovation window

According to Sarkar (2010), "*if there is a popularity award for a word that captures the imagination of academia, politicians, media and business alike, one strong contender that stands out is the word "innovation". Coupled with "entrepreneurship", it holds the promise of unlocking the gates to the opening of new markets, enhanced firm and economic growth (…)*".

Leadbeater (2009), said: "*the web is a major potential forces of innovation, encourages a culture of sharing it invites us to think and interact with people. It is an invitationn to connect with others, share, exchange ideas and create new knowledge*".

The principle that one should think "with" contrasts with the thought of the twentieth century, a time of mass production in which consumers were considered only commercial objectives. "Do something with" rather "to do something to" is a central idea for innovation, since it allows thinking of new interactions,

such as organizations and consumers. Still to this author, the idea of "with" the web favors may well be seen as a potentially transformative of our society.

A major factor in the current era of information relates precisely to the concept of experience. Consumers know what they need and why they need, trying to put the focus on the relationship service/consumer and not so much on the product itself. Consequently, economic, technological and social interconnection, we are witnessing a dramatic change in the roles of consumers from passive beings and isolated in society for active people and connected with each other and with organizations. As stated by Kotler (2010) "Participation in the Age of people create news, ideas and entertainment, as well as consumption. The new wave of technology allows people to move from consumers to prosumers (Kotler et al, 2010).

Leadbeater (2009) also points out that today, the identity - what the individual is depends on the recognition and value that others give you, being the current society characterized by sharing and supply. In fact, this is an idea that differs from the twentieth century mentality, in which the individual was identified by its property and what acquired.

According to Toffler, "To predict the future of wealth, we observe not only the work we do for money, but also unpaid work that we all perform as prosumer" (Tofler, 2006). "New wave technology Enables people to turn from being into prosumers Consumers".

"In an economy of things a person is usually identified by what has (a land, a car, a house). In my mind that the internet is building, savings are usually what we share - to whom we are connected, which our social network and that ideas, images or videos that we love to share." (Leadbeater, 2009). Leadbeater (2009) concludes, therefore, that the web 2.0 platform is, in fact, determine a new culture, called by We-Think community, which consists of a combination of concepts such as democracy, equality, sharing and community. For the author, We-Think creates a basic economic model, powered through decentralization and distribution of technological "donations of knowledge." Thus, the circulating ideas "and from many people," relationships are created or transmitted to emotions.

In fact, if we analyze the concept of We-Think (Leadbeater, 2009), which results in a mass of independent people with different information, tools and views that can discover, analyze, sort, create and innovate a much larger scale than most isolated individuals, then it is easy to realize the creative potential of this reality, to the extent that creativity emerges more readily when different people combine their knowledge and ideas in order to produce something new.

"In the economy of things you are Identified by what you own - your land, dare car. In the economy of ideas the web is creating, you are what you share - linked to who you are, who you network with and which ideas, pictures, videos, links or comments you share " (Leadbeater, 2009).

According to Botsman (2013), "...Over the past 20 years, we have literally wired our world to share, creating an unbounded marketplace for exchanges between producer and consumer, seller and buyer, lender and borrower, and neighbor and neighbor. The old consumer world created a layered interface – otherwise known as the middlemen – between the company and consumer, bridging the gap between production and consumption. But the Internet is removing the middlemen, so that everyone from Tshirt designers to musicians can make a living selling peer to peer".

If we started by involving the end users in the organizations innovation effort by opening the company to the stakeholders participation in the innovation process, today, due to the technological development and the mindset shift that this new IT enabled reality broth to us, we like in an full open culture (Li, 2013). In such environment, innovation processes, system, methodologies, methods, tools most change, improve and re-create themselves.

However, not all users are not only participants, they will discover and build on the ideas of others, developing a path around innovation, a more "open" path to innovation.

2.2.1 Open Innovation

Chesbrough and Schwartz (2007) define open innovation as the "(...) *use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively*", (Chesbrough & Schwartz, 2007). More specifically, firms can include the following archetypes of core processes, when adhering to an open innovation process: outside-in or inside-out processes, or a coupled one (Gassmann & Henkel, 2005).

The open innovation paradigm implies co-development partnerships, developing a mutual working relationship (versus the traditional defensive business strategy), and using external sources of knowledge. These partnerships might look for the delivery of a new product, technology, or service, to reduce R&D expenses (Chesbrough & Schwartz, 2007), to expand the innovation output and its impact, and even to open new markets otherwise inaccessible.

As Törrö (2007) holds, the open innovation paradigm means firms practice the sourcing of external competences, use networks as an external resource pool and these means they can benefit from global intellectual capital brokering. Lettl (2007) holds that involvement of the right users is a market capability. These firms have, mostly, internal R&D strategies that influence partnership with university-based research (Bercovitz & Feldman 2007), though limited by a small study sample. Becker and Zirpoli (2007) also mention the boundaries of the firm in the open innovation process. A strong relationship between the existence of a firm innovation strategy and the interaction with universities is surely important (Bercovitz & Feldman, 2007). Some factors favorable to the existence of university partners (Bercovitz & Feldman,

2007) are the perceived ability to fully appropriate results due to different objectives, what puts appropriability as a partnership motivation; and also patenting results.

This is changing, though, because of the growing assertion of property rights. Other factors important to choose an innovation partner are the limited risk of competition and the central role of universities in an innovation system (Sarkar, 2013).

Partners possibly will have to implement a new business model, considering a common objective for the partnership (for example, to increase profitability or expand market access) (Becker & Zirpoli, 2007; Lettl, 2007) refer that, surprisingly, firms are adapting business models and value chains to open innovation demands. R&D capabilities of both firms should be as sassed (Lettl, 2007) and classified, between core, critical or contextual categories (Becker & Zirpoli, 2007). Core mean, usually, key sources, sparingly shared; critical capabilities are those essential for a product's success and finally, contextual are the ones which aren't essential to one of the partners, yet essential or core to the other, maybe smaller partner. Business model alignment usual problems can be mis-assessment of the objectives, mis-judgement of the criticality of capabilities, lack of alignment - alignment including complementarily, too - and this should be a reason to carefully determine the degree of business model alignment and to manage the partnership caring for future needs (Huang et al. 2002; Lettl, 2007).

Before we can start discussing this subject, it is important to stress that the open innovation concept, as referred by Chesbrough, is not new (Christensen et al., 2005). Cohen and Levinthal (1990) had already developed the concept around the competencies developed by R&D labs to manage internal innovation as well as to reach out and integrate external ideas, science and other external knowledge and creativity. Rosenberg (1982), Lundvall (1992), Pavitt (1998) and Von Hippel (1988) among several other authors also contributed for the concept by exploring its interactive, multidisciplinary and inter-organizational nature of innovative learning. In his book “Open innovation: the new imperative for creating and profiting from Technology”, Chesbrough (2003) added to those prior formulations, a more focused and systematic study of the corporative practices to effectively man- age the external processes of innovation. Chesbrough highlighted the role of open innovation to enable high-tech companies to absorb technological innovation faster and cheaper, changing from an introverted and proprietary paradigm to a more extroverted and open one.

Studies in innovation have stressed the growing relevance of external sources of knowledge and creativity (Perkmann & Walsh, 2007). These studies have showed that more than trusting their R&D labs, organizations should devote more efforts in open innovation (Chesbrough & Crowther, 2006). This means that innovation can be considered the result of knowledge networks connecting several organizations instead of a function within one organization (Coombs et al. 2003; Powell et al., 1996).

In the same sense, the concept of interactive innovation was implemented to understand the non-linear, iterative and multi-agent nature of the innovation processes (Kline, 1985; Lundvall, 1988; Von Hippel, 1988).

Parallel to the organizational concern to keep the growth of their structure, they are also required to trust in external sources for the innovation processes input (Törrö, 2007). Collaboration with suppliers is already an important part of the innovation strategy of large organizations. Simultaneously, the traditional outsourcing of innovation, in which the full responsibility for part of the innovation process is transferred to another organization, is growing in popularity. The trend is, however, to form extensive networks in order to reach external competencies (Correia, 2014).

Thus, the challenge is now to identify and contact individuals and organizations worldwide in order to gather ideas and solutions to eventually choose the one that can complement the innovation process of the organization (Bowonder et al. 2005; Moitra & Krishnamoorthy 2004; Perrons & Platts 2004; Fowles & Clark 2005; Quinn 2000; Chesbrough 2003a).

Laursen and Salter (2006) have explored the relationship between the opening of the organization to its external environment with the innovation performance. They have concluded that the organizations that are opened to external sources of innovation, or with external inquiry channels, have a higher level of innovation performance. By studying British industrial companies, the authors showed that these companies kept systematic strategies to search various channels and in doing so they were able to get ideas and resources that enabled them to identify and explore opportunities for innovation. This study follows the work of Cohen and Leventhal (1990), who argue that the ability to explore external knowledge is a key element of the innovation performance.

With the aim of promoting the internalization of the organization, the open innovation strategy can induce an improvement in the performance of the innovation processes. Kafouros et al. (2007) suggest that organizations need to have some internationalization maturity, being active in various markets, to be able to success fully innovate.

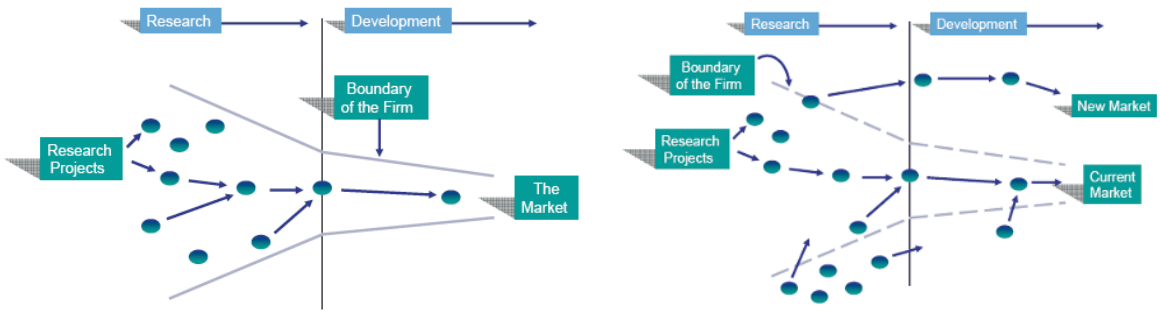
While lately there is a growing interest in open innovation, little empirical evidence exists on how it is implemented in organizations. As implied by Gassmann (2006), there are still many gaps in the research on open innovation. In line with this understanding, several researchers have stressed the need for further research to study and critically analyze focused topics relevant to understand the phenomenon. Katila (2002) and Laursen and Salter (2006), suggest that a deeper under- standing of the ways the organizations structure their inquiry of external ideas needs to be developed. Simultaneously, little is known about open innovation from the point of view of organizations that profit from selling their own intellectual capital (Chesbrough & Crowther 2006).

More specifically, European organizations show competitive problems due to the low investments in innovation (Vigier 2007). Structural factors such as weak connections between science and industry often explain low levels of knowledge creation. It is believed that only by promoting innovation, including open innovation, will it be possible to go over that deficit, and in that way, to improve competitiveness and market leadership.

The central idea that sustains the concept created by Chesbrough (2003) is that of globally distributed knowledge and that organizations do not have the enough resources to trust only in internal innovation. This new concept stresses the limitations the close model of innovation predominant in the last few decades and which limited the R&D processes to the knowledge generated within the organization. Organizations implementing the close model make substantial investments in large R&D Labs to create the conditions for the emergence of knowledge and creativity.

The open innovation model (see figure 18) praise the knowledge flow through the organization boundaries to enable the accelerated development of internal innovations (i.e., supported by the licensing of technologies developed by others), and to expand the use of technologies internally developed that could become underused.

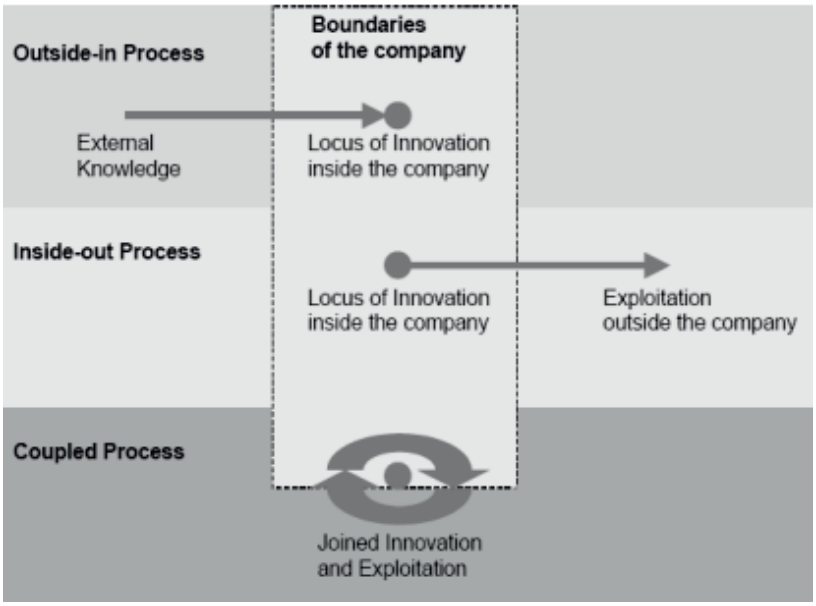
Figure 18 - Closed and Open Innovation Models



Source: Chesbrough (2003)

Based on an empirical study of 124 companies, Enkel & Gassmann (2004) identified three open innovation core processes: (1) outside-in process: enriching of the organizational knowledge base by integrating suppliers, clients, and other external sources of knowledge; (2) inside-out process: exploring external markets to sell internal ideas. (3) coupled process: a mix between the outside-in and inside- out processes working in partnership with other organizations. The following figure 19 illustrates two perspectives of the three processes of the model, identified by Gassmann e Enkel (2004).

Figure 19 - Gassman & Enkel Model



Source: Gassmann and Enkel (2004)

The main challenge in adopting the open innovation model is in finding the right people and in fostering the collaborative work with the aim of integrating scientific discoveries in a innovative way. The resistance attitudes resulting from devaluing the ideas and solutions not developed internally is an important factor hindering the adoption of an open innovation strategy (Chesbrough et al. 2006).

Chesbrough (2011) argues that open innovation contributes to innovation and differentiation of supply, both in existing businesses and offer, as future or new. Open innovation promotes the improvement and extension of products and services as well as creating entirely new. The same author presents two complementary ways of sharing and openness of companies: Outside-In, an approach where minority makes use of ideas and external inputs for integration into their business and Inside-Out approach through which companies use minority of their ideas by sharing technology and processes that can be used by others (such as the case of Amazon). However a few identifies need for change at the organizational level and barriers to be broken so that the logic of open innovation can be applied in business, including awareness of the importance of working closely with customers in developing solutions through pilot testing to solving specific problems, a change in the focus of the company's product to the utility and integration of consumers in organizations.

Duarte and Sarkar (2011) clarifying the concept of open innovation explaining that: (…) "*is the opposite of the traditional vertical integration* (…)". Bet in observation, use of external knowledge in order to create products and markets by leveraging general forms of collaboration between businesses, such

partnership strategies, where there is a proliferation of partners. These occur when necessary skills and techniques specific to a particular industry and where the outcome is related to the quality of partnerships, and results of interactions with user communities. The formal strategies that generally occur from firm to firm are focusing on the technological skills market.

As quoted by Chesbrough (2011), "In recent years, open innovation Has Been changing the way many companies think about Developing products. But open innovation can apply to services and shouldn't too "considering that the teachings and concepts of open innovation are also applied to service innovation. This finding is based on the visionary works of various authors "customers do not want to drill, They want the holes the drill we make " (Levitt, 1981) affirming the curious finding that consumers do not covet the product but its utility, value and service that it produces.

Chesbrough (2011) concludes that these changes require an evident change in the role of services in the value chain. Proposes a current view that they do not serve only to support the product but are creative elements of value but stresses the difficulty of implementation due to its intangible nature. Contrary to products services create value through user experience. This is different from consumer to consumer, to create value in services is of course different, defined by a non-linearity in the process. However, refers to an approach merging consumer participation in parallel with the use of traditional tools for obtaining information as a way to understand and integrate value services.

2.2.2 From User-innovation to Consumer/Creator/Producer

It has been known for a many years that organizations manufacture new products for customers, while customers are inert recipients — simply buying and utilizing what producer's manufacture. However, a multidecade attempt by many researchers has exposed that this conventional innovation model is primarily defective: Customers themselves are the main cause of product innovations (Shah, 2000).

Martin (2009), who happens to be The Dean of the Rotman School of Management, has said at the University of Toronto, "*the key is to move from a producer-driven perspective to a consumer-driven perspective.*".

In the circumstances of overall wellbeing, clients are the people and social orders and groups who are the plausible beneficiaries of most recent wellbeing items and interruptions. A fruitful incorporated innovation system will request the suppleness to movement over and over again between the viewpoints of makers (specialists and researchers) and clients (groups, people, social orders, and wellbeing experts in the lower class to white collar class nations) to backing the extension of leap forward advances while additionally verifying that these innovations could be given where they are gravely required (Martin, 2009).

The assumption has long been changed considering consumers as passive recipients and its largely accepted now-a-days, that they are a important part and a source of innovation, leading to a paradigm shift in innovation where the consumer have a central and active role (Hippel, 2001, 2011).

According to Hippel (2011), the paradigm shift happen in 3 main phases:

- Phase 1 - with small and uncertain markets for products and services where producers know they need to spread their R&D and other innovation costs over a lot of purchasers in order to make a profit. This phase the costumer are often pioneer in creating products by themselves;
- Phase 2 - where the interest is generated and the other users improve the products and where consumers are not only developing but also providing marketing data for these new products leveraging the producers attention;
- Phase 3 –the small producers understand when the market potential is clear and decide the design and functions of the new product and the risk levels. The larger companies follow if the market grows being the producer that introduce novel innovations as designs to make them more reliable and easier to use, redesign.

The implications of this new paradigm are (Hippel, 2011):

- First - Companies understand the initial potential of user-centered innovation regarding the building of awareness, the development of new product designs, prototyping and usability testing. To do those companies must consider consumers as important developers.
- Second - The consumers understand that is progressively easy to design what they want using computer-based design tools, web based free tools and that this tools are user-friendly.

Now a days, companies are even providing consumers with new services to enhance their participation in the user centered innovation effort by creating easy to use IT platforms for design sharing, final product personalization and more recently preparing their products or services to be even produced and manufactured by the consumers himself, for example to be printed at home with affordable 3D printers already available in the market (de Jong et all, 2013).

This recent “Makers Movement” (Anderson, 2012), along with the technological development of new solution such as collaborative design software's and 3D printing, empowers the consumers to become not only creators but also producers of innovation. According to Von Hippel (2012) the shift

transforms the user centered innovation approach into a Consumer / Creator / Producer innovation paradigm.

For the companies this implies a new mindset. We have already happening the first new business models examples like the 3D printing shops where any consumer that created himself a new product can go and print / produce its product, in very small quantities and minimum quality (3D Spot in Lisbon), changes the companies drivers, as for example, the competition analysis: Now it's not only direct and indirect competitors that companies need to analyze, they most include possible competition from all consumers that can have a smart solutions “homemade” for the some “problem or opportunity”.

According to de Jong et all, (2013). companies have five possible ways to respond to consumer/creator/producer challenge:

- Monitor – To be aware about what the user’s communities are developing - so they can react on time;
- Attack – Attacking innovating users communities, when their patent’s may have been use and produce by the new technologies;
- Adopt – Incorporate the new technologies on the companies innovation and producing systems and put themselves as part of the “gamechangers”;
- Acquire – Absorve relevant knowledge, skills and innovation power from the users communities, integrating them on the existing business model r even creating new ones;
- Facilitate – Influence the direction and nature of the users community innovation efforts, obtaining their Goodwill and showing the complementary services or company products.
- Smart companies should start to rethink their innovation management practices towards this important paradigm shift, thinking about different scenarios.

The **Implications for entrepreneurs** involves decisions to commercialize according to indications of demand as well as produce designs and accept and process customers’ orders and payments and to ship the completed product to the customers for you as well.

The **Implications for existing companies is about the rethink of** Businesses needs and how to reorganize, accept and build upon prototypes developed by users and learn how to identify promising consumer-developed innovations that are gaining traction among groups of consumers. Companies can create or frequent consumer community websites or innovation contests to attract consumer activity and help own product developers look at consumer-developed innovations with new.

So the companies should stop attacking the innovating users communities and using methods that also caught their user-innovators, explore to determine what users want in ex-change for they can benefiting from their innovations, create a positive long-term relationship with your innovating users and strive to create a win-win.

2.2.3 Collaboration in the context of Open Innovation and Networking

Collaborative networks are crucial for the overall open innovation concept. Some studies show their importance in the improvement of company's innovation performance. Nieto and Santamaria (2007) research shows how different types of collaborative networks contribute to the upgrading and innovation of industrial products. Using longitudinal research data about Spanish industrial companies, results show that a collaborative network is of crucial importance to reach a higher degree of innovation in specific products. Collaboration with suppliers, customers and other firms has a positive impact in innovation, while the collaboration with competitors has a negative impact. This study also puts in evidence that the main positive impact on innovation comes from collaborative networks holding different types of participants.

Perkmann and Walsh (2007) explore characteristics of collaborative relation- ships between universities and industry through an open innovation perspective. Authors present a model, distinguishing university-industry partnerships from other mechanisms such as technology transfer or just human mobility processes. Re- search is centered in the analysis of the role of some practices such as collaborative research, university-industry centers of research or academic consultancy. Evidence suggests that such university-business relationships are practiced extensively in a productive way, despite the existing differences between industry and scientific disciplines.

Michaelides e Kehoe (2007) go deeper presenting a methodology to draw collaborative networks in the context of open innovation. Their study shows the benefits of using an information system design methodology (ISDM) to build a research community permanently online, incorporating flexible processes and promoting Open Innovation through new ideas and diffusion of new research results. The methodology is shown on the IPGC community prototype. This methodology is based on focused development stages concerning the definition of a social community and approaching specific organizational issues and process. As Roberts suggests (2006), specific and significant topics existing in one community, could be attractive to new users inspiring them to re-visit. In fact, interesting and useful material is vital to keep conversations going on.

Authors hold that successful online communities demand regular problem monitoring and change to meet its member's needs (Michaelides & Kehoe, 2007; Snyder, 2000). Additionally, Web 2.0 asynchronous tools must ensure personal publication applications like blogs, as well as RSS (real simple syndication), to enable members to subscribe information sources, allowing filters to select that information. Podcasts, asynchronous messages and event video-conference must also be included.

Nevertheless the conclusions extracted from their work, authors recognize this research faces some challenges because the open innovation model is now rising and many characteristics remain to be discovered. One of the challenges is related to poor IT applications to support knowledge communities.

In these communities distributed knowledge flows simultaneously through many actors, and aspect that is poorly support by IT applications.

The digital word that ascends around the Internet networks demonstrate us enriched and significant paradigms of cooperative performances and community behaviors: in the past twenty years, the concepts of digital societies and communities showed up from the practice of the free software, as a objected experience in the experience of knowledge sharing and grassroots creativity. In the present times, the current uproar within networks has fetched wider societies and communities merge together in the fabrication of knowledge and in the allocation of public actions. It is in the framework of digital networks that we monitor a rapid and viral contribution from new users in the development of content creation. In other words, the information, communication tools symbolize the capability of the users to facilitate new relations.

Effectual use of the Internet has been attained through its use as a medium of communication, as a mean for to transmit information and as the main instrument for communications between individuals, in a communitarian and networked sustainable approach. Learning, Experiences and content creation by many are the key processes that presently guide to creative innovation; these procedures have been fully discovered in organizational studies, and we mostly refer to the “Creative Support Tools Report” (2006) for an amalgamation of these ideas from a practitioners’ mindset. Creative communities and digital communities split a same approach that emphasizes the role of cooperation and sharing as a realistic action, and we believe this as a strategic tool not only for the specialized creative activity, but most of all as a proficiency that belongs to persons allowing them directly to participate to their own problem setting and solving. In this broad scenario, creativity is a progression with social significance and nature. Furthermore, the fresh theories of Benkler (2006) about the impact of technology on the social communal life breached the socioeconomic study of the community organizational model: it is mainly the sharing proficiency fed by the Net and experienced by societies that make probable the expression of creativity and the linked innovation.

Collaboration and Participation are measured as the most important trends in social innovation (Benkler, 2006). By utilizing the power to join people, the network models refer primarily to cooperation practices; from this model comes the concentration for digital societies and communities and the digital tools that they utilize to attach and proceed in the field of production of public goods. The development of the above mentioned problems is linked to the quick growth of ICT (Information and Communication Technology), which is utilized for the public management of data and resources, to encourage cooperative exertion and to nurture the appearance of public heritage. The public domain is augmented thanks to ICT’s capability to facilitate new models of knowledge production; it has been monitored that Peer-to-Peer

(P2P), Web 2.0, social networking, and, etc. are producing the new chances of the radical change of the way of doing and being in everyday life, and their impact influences both the physical and digital networks. Specifically, mobile communication is predicted to offer significant enabling technologies for the endorsement of sustainable daily life where mutual services are implicated.

The network concept might have entered social sciences through urban complex grounds, opposing the previous notion of community inherent to anthropological original studies in small scale societies (Mitchell, 1974). Attention is called upon the fact that usually authors either choose a morphological approach or an interactional one. Morphology can include several aspects, considering connectedness, density, anchorage and reach ability. Interaction includes content, directedness, durability, intensity and frequency (Mitchell, 1974). Sometimes, too, authors mingle criteria to obtain specific and more expressive operational constructs. Mitchell (1974) gives particular attention to content, which includes communication con- tents, transaction (or exchange) and normative content (relational).

A social network is something that affects the flow and quality of information (Granovetter, 1973; Granovetter 2005; Ahonen & Lietsala 2007; Perkmann & Walsh, 2007) that means also the need for coordination mechanisms (Gassmann & Enkel, 2005). Sources of reward but also punishment (Granovetter 2004; Ahonen & Lietsala 2007), networks are based on social capital, first of all (Bourdieu 2001; Line 2001) and establish layers of intellectual capital (Törrö, 2007) - somehow a parallel with the sociotechnical model of Bressand and Distler (1995), which includes a layer one, for infrastructure (physical support for communication); a layer two, for info structure, formal symbolic communication rules; and finally a layer three, for info culture, the background taken-for-granted knowledge (Lehaney et al. 2004). These networks integrate ideas, and one must consider that the acceptance of an idea is part of its comprehension (DiMaggio, 1987), and so being the comprehension of related knowledge and technology. Trust is an important factor (Granovetter 2004; Ahonen & Lietsala 2007), and most of all a network is embedded in an interconnection of networks. This means that an additional layer is built in the organization.

Gassmann and Enkel (2005) make an in-depth study of 230 networks to know their management mechanisms: through this study they come to know that firms gain if they integrate networks work in their R&D, because they become able to capture knowledge from the outside to the organization. The network might also facilitate a company's transition from a rigid structure to a flexible one (see Gassmann and Enkel 2005, for a comprehensive enunciation of a network's structural elements). Networks can also be defined as social processe or configurations, as Perkmann and Walsh (2007) state.

What are the properties of a network? Tacit and explicit knowledge flow easily (Lambooy, 2004). Also, if we consider knowledge as a socially embedded process (Brown & Duguid 1991; Perkmann &

Walsh, 2007) then knowledge shared will be relevant. But, as Schneider says, knowledge is treated like a re- source or a production factor for firms, and in fact capabilities (interaction between knowledge and its specific application), are more useful than that (Schneider, 2007). Other network proprieties are important, as formality of content, intensity, frequency of contact, durability of relationships, and the fact that a net- work deals either with radical or incremental innovation (Lambooy 2004; Oerlemans et al. 1998); minding this, complexity of innovation is also an important factor (Oerlemans et al., 1998).

Culture can be seen as a set of complex and variable rule-like structures that can constitute resources (Bourdieu, 2001; DiMaggio, 1987). Network culture means sharing, as Maxwell (2006) says, while referring specifically to a norm of sharing in the open source community, But cultural actions also imply reciprocity and shared patterns of interaction (Nieto & Santamaría, 2007) and here it might be noticed that networks are relationship-based, in the sense that they promote the production of a social identity, just like communities, through a specific sociability, support, flows of information, and even a sense of belonging (Wellman, 2005; Törrö, 2007). The various definitions of culture don't conceal the fact that there's a common ground that may cause conflict showing the difference between groups and their symbolic systems (Bourdieu, 2001).

Social presence theory relates to the exact point where we perceive others as real people and our mutual interactions as relationships (Short et al., 1976). Mediated communication is as much efficacy as it allows people to have a certain amount of social presence. This theory becomes important because of the quantity of nonverbal information needed to establish substantially this perception (Wood & Smith, 2004). Postmes et al. (1998) try to assess real online relationships through the social identification/ deindividuation (SIDE) theory. The model stands on a basis of group identification through mediated communication, considering that in a certain way people let go of the coherence they should be supposed to sought for, and adapt to those group discriminators, as substitutes of the nonverbal component they cannot access being online. This becomes something of a loss of identity (at least in a conventional way), what psychologists call deinviduation (loss of the individuality in favor of group identity) – typical of the mobs.

Cognition depends on immediate social relationships but also on networks, group memberships and self-identities. One must coordinate his/her identity either through immediate social context or in a larger network of relationships, which can assume four types, as referred by Thompson et al. (2007). These frames of relationships include interactions like Communal Sharing, Authority Ranking (in fact, some physical aspects of space contribute to our mental representations about authority and social power), Equality Matching and what the authors call an utilitarian Market Pricing. Now, could we propose a fifth one, mediated distortion?

Cognition paradigms might be referred to as embedded, distributed or extended (cognition but also interrelated memory). There is a common ground which considers some sort of hybridization, meaning interaction between brain and environment – related to complex human set-ups and cognition processes that include people and things (Barnier et al., 2008). This also means there is an extension of the information processing behind the brain activity. An intersection of embodied and distributed cognition occurs, because functions aren't only abstract. This means the externalization of processes to influence and get influenced (Smith, 2008). Bearing in mind that human cognition also takes place framed by other people (Smith, 2008) then groups and teams become relevant assuming some sort of durkheiminan social division of cognitive labor (DiMaggio, 1987). Distributed cognition is a particularly useful concept if we think about memory and related processes like encoding/ storage/ retrieval, which normally involve more than one individual (Barnier et al., 2008).

The difference between group and individual thinking is more a matter of degree, and the group may increase biases shown by one individual (Brown, 2000). That will be based particularly on what the group already thinks or co-opts. Minding this, "(...) external influence is (...) primarily negative, the relentless intrusion of the social into malleable individual memory" (Barnier et al., 2008) – what comes to be obviously a fail-to-do-justice view because memory is most of all rational. It's worthwhile referring here to the paradox of memory: past structures come to the present, but the present selects which past remains as a legacy… and above all, history and facts keep being retold. Practices of memory as forms to keep its past present (Jedlowski, 2001) call our attention to two important factors: one, the group as a frame for memory (Halbwachs, 1968); a second one, when does memory become information? This leads to the following theoretical approaches to memory. The first searches to understand the amount of correct information. Important factors induce variation, which are the collaboration type, inducing collaborative recall (Weldon & Bellinger, 1997), the nature of the group and roles assumed (Goffman, 1993), all crucial elements for a better group memory performance (extensively: nature of the group, collaboration, size of the group, nature of the stimuli). The objectives are: accuracy, establishing relationships, making good impressions, developing intimacy, and teaching/ informing. Transitive memory means "a set of individual memory systems in combination with the communication that takes place between individuals." (Wegner, 1987). After all, storing information about who knows what. Of course this must be a systemic approach, in the way that shared recollections are more than the sum of individual ones (transitive systems with emergent properties).

Costs and benefits of remembering in groups may involve group influence, fate of memories, and be a function of the group memory. If the group is more robust, then the transitive memory mechanisms will work better. This implies that in an open innovation context, meaning a large community contribution, the groups can be less robust. So, transitive memory mechanisms will possibly work worse. Open

innovation will probably mean that there'll be a collective loss (on transitive memory) but some collective gain (on search and solving problems, see next section.). As Maxwell (2006) says, collective value is built together with participants self-interest and benefit. Collaborative groups recall more than individuals but less than nominal groups, as Barnier et al. refer. Also, "Some distributed systems are one-offs." (Barnier et al. 2008).

Karlsson (2010) in his interesting work on the use of crowds to drive innovation, highlights the importance of networks of people as a tool for the exploration of new ideas and improving existing ones. The same author, based on the work of Skarzynski and Gibson (2008) lists some important in the design and implementation of networks of people for innovation principles:

- Invite all: do not restrict the participation of people in the network because the more broad and diverse the participation, including various people inside and outside the company, the greater the number and probability of finding ideas capable of being achievable. Citing Fleming (2007), reinforces the important thing is to generate the maximum possible ideas to get few high value. Innovation is a process of divergence, generating a large number of ideas, exploration, maximizing the value of each and convergence to expand the applicability or feasibility of each;
- Use the Self-organization: Leave networks and self-organize themselves deal with complexity by clear and structured presentation of the goals. You must define scalable systems, allowing easy identification of groups of ideas and opinions. Advises the decentralization of processes as a single person way to get innovation that meets the needs of customers and the organization, through the selection of specific charge of the various systems that make up the network and organize themselves in accordance with the purpose of innovation. Reveal the importance of providing feedback to participants, directing them and creating "boxes" most relevant ideas. These boxes must bridge the gap between needs and innovation and ideas presented, directing them to the objectives of the innovation network;
- Embrace Collaboration: Use a variety of skills, backgrounds, interests and expertise as a way to leverage collaboration and this, by itself, is not deep enough. The participation of experts is important in identifying the best ideas and feedback. Citing Johansson (2007) emphasizes the importance of cultural factors and the knowledge of several disciplines that when worked, combined and connected, resulting disruptive ideas. Citing Fleming (2007) highlights the multidisciplinary approach as a promoter of the variety and number of ideas.

- Give recognition: Several times above, provide feedback for the initiative is important to improve the motivation of participants but also the status, identifying him as a promoter of good ideas by building reputation. Declares that appeal to the ego of the participants is as or more important than the money factor.

2.2.4 Integrated Innovation – evolving social innovation concept

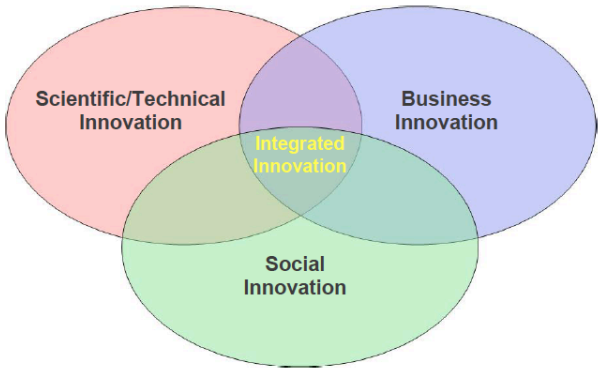
According to Singer and Brook (2010), one of the most pressing questions social innovator's and the science–for-development community more broadly are the respective roles that scientific/technological, social, and business innovation can play in delivering improved global health and well being outcomes. They argue that "scientific and/or technological innovations have a greater chance of going to scale and achieving global impact if they are developed from the outset with appropriate social and business innovations—an approach that they call integrated innovation".

Integrated innovation (Singer & Brook, 2010), is "the coordinated application of scientific/technological, social and business innovation to develop solutions to complex challenges. This approach does not discount the singular benefits of each of these types of innovation alone, but rather highlights the powerful synergies that can be realized by aligning all three to address a single challenge".

By its nature, integrated innovation is context-specific. Scientists working in the areas that are impacted by a challenge have a deep understanding of how that challenge manifests in their local environment. Because of this embedded knowledge, local scientists who are working on breakthrough science and technology will also have a deeper understanding of the social and business innovations that will be necessary for that technology to be implemented in their communities

In applying an integrated innovation approach to a complex real-world challenge, it is useful to work through three decision points (see figure 20).

Figure 20 - integrated Innovation Framework



Source: Singer and Brook (2010),

- Scientific/technological Innovation – What products, technologies, processes and know-how might be necessary to address the challenge?
- A key consideration in developing a solution to a complex global challenge is to determine whether an existing product can be used, or modified, to provide a solution to the challenge or whether an entirely new technology, must be developed to effect a solution. The process of developing new and/or modifying existing products and services is known as scientific/technological innovation. Although some important global challenges can be addressed through the implementation of existing technologies, the solution to many global challenges will depend on breakthrough scientific/technological innovation.

- Social Innovation – Are there social innovations (including health systems, the determinants of health, ethical/social/cultural/legal frameworks, public policies, leadership and human resources among others) that will be necessary to bring the solutions that are developed to scale in local communities in an appropriate manner?
- Even where an effective technological solution exists to address a specific challenge, the local community must have the capacity to take the solution to scale before its potential impact can become a reality. As such, social innovation (in the context of integrated innovation TM) can be thought of as research and development into the ways to bring innovation to scale in specific local and regional contexts. Social innovations can include the creation and implementation of new approaches in the context of health systems, the determinants of health, ethical/social/cultural/legal frameworks, public policy, leadership, human resources and other key components of society that influence health outcomes.

Beyond simply bringing an innovation to scale, social innovations should be both resilient and durable. The resilience of an innovation is its ability to adapt and flourish in changing environmental conditions. This capacity is particularly important in many low- and middle-income countries where a range of external and internal factors (such as famine, drought, political shifts, the creation of new infrastructure, etc) can lead to significant changes in their communities' ability to implement and maintain new innovations of any kind.

The durability of an innovation can be thought of as its ability to persist over time and is often dependent on the financial sustainability of its implementation strategy. As such, the long-term success of an integrated innovation TM approach will depend on its ability to engage for-profit companies and not-

for-profit organizations in a manner that aligns their ongoing success with the success of the proposed solutions. This aligning of financial incentives with social outcomes has been called social finance.

- Business Innovation – Are there appropriate business systems in place to produce and deliver the solution at an affordable price point?
- Business innovation focuses on the delivery of appropriate, high quality goods and services where and when they are needed at an affordable price point. In practice, there will always be trade-offs between the functionality, usability and affordability of products. Although most innovation in high income countries focuses on the first of these three dimensions, scientific and/or technological innovation can also lead to significant improvements in affordability and usability which can be as important, if not more, as drivers of global wellbeing impacts than the creation of new functionality.

Innovation in high income countries often focuses on developing expensive new solutions that provide incremental improvements for a very limited number of rich consumers. In contrast, innovation in low- and middle-income countries is increasingly focused on “value for many”, or innovation that focuses on affordability rather than on the provision of new products and services.

Increasingly, innovations in affordability that emerge in low- and middle-income countries will be transferred to high income countries where they will begin to displace traditional (and more expensive) products and services.

The term innovation is a bit of a paradox: it is now so commonly used that it is practically ubiquitous and yet it defies simple categorization or definition. At a fundamental level, however, innovation is about taking ideas or knowledge and converting them into something useful. Peter Drucker, the management guru, described innovation as “change that creates a new dimension of performance".

It is often unclear—particularly in a complex field like global health—which innovations will have the greatest impact. Successful innovation to address complex challenges requires experimentation and thoughtful risk-taking in order to enable the development of a broad portfolio of potential approaches from which one or two successful solutions might emerge. To this end, effective strategies to address complex challenges should:

- Enable the rapid prototyping of new innovations,
- Support rigorous evaluation that allows for the rapid termination of those,
- Innovations that fail to deliver on their promise of significant benefits,
- Provide mechanisms to bring those innovations that succeed to scale.

Innovation is about new products in the same way that brands are about logos: while this definition is technically correct it only captures about 10% of the story. A range of forward thinking companies have embraced what could be called "Integrated Innovation," an idea stretches innovation from being just about new products to innovation being a core enterprise competency (Hamel, 2012).

Integrated Innovation involves moving from the narrow definition of "innovation = new products" to the belief that innovation should be infused across the enterprise (Cloverview, 2010).

Integrated innovation framed forward-thinking brands have three things in common:

- First, these companies see innovation as being more than bringing the next product to market. As the table xx below illustrates, innovation is a core competency that touches everything from product bundling to customer experience.
- Second, these companies coupled a keen understanding of unmet customer needs (B2C or B2B) with a keen understanding of core competencies. For example, management-consulting firm Booz & Co advised brands to look beyond traditional research – where respondents opine on current needs – to better understand unmet needs. Research that listens in on chat rooms and discussion boards, for example, can provide innovators with a font of ideas not unearthed through more traditional methods.
- Third, they have an enterprise commitment to do things differently, which sometimes manifests as appointing a Chief Innovation Officer, or implementing programs such as innovation time off.

2.2.5 Building an holistic innovation framework

Through the last twenty years the innovation mindset changed from a customer-led view to product-led until innovation, changing from creating products to deliver value prepositions.

The today's vision about innovation should be organizations struggling to develop an holistic model that move innovation and get results from it.

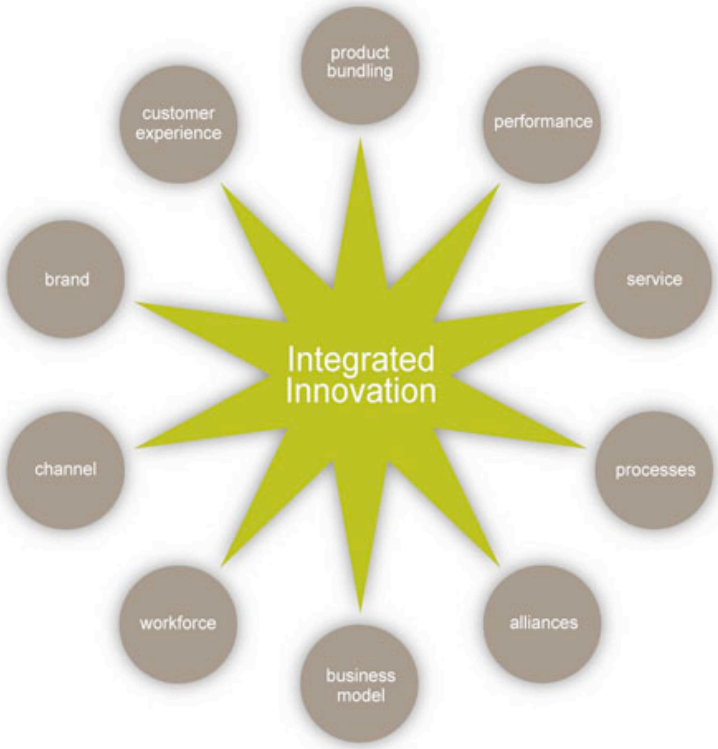
The new innovation models in business contexts are about value, they need to be holistic and integrate a large amount of variables as the needs of a user, the customer or other stakeholder and the innovator ones, in order to be valuable. In business means optimizing shareholders value, creating for beneficiaries and revenues to the innovator, delivering value in overall and individual parts of a value chain by fulfilling the needs of all, reflecting the organizational roles, mission and propose.

According to Cloverview (2010), we need holistic models of innovation and a framework (see figure 21) to create and extract the most value from it base in the following premises:

- **Innovation is not just NPD, it's a variety of innovation levers:** Value it's not only captured and created in the point of sale, but involves all the organizational functions and activities:

- **Customer experience & engagement:** the consumer experience and engagement have and active role in value creation by the number of touch-points that can be created in order to improve our customers' experience with our products, services and our brands. Yet, can be leveraged by today's technological options and channels in a more proactive ways, new tools and social media;
- **Business Model Innovation:** Also the business models require innovation taking in count an holistic approach to create and capture value from the target, the prepositions you offer, the channel and engagement mechanisms used, how organization is organized and collaborate with the other.
- **A balanced innovation portfolio:** reflecting the companies profile regarding risk, the short, medium and long-term propose strategy aligned with the innovation strategy, business unit, brand and functional strategies in three main horizons:
- **Incremental:** innovations to sustain market share and attract new customers to an existing product and service;
- **Breakthrough:** innovations that create a step change in business performance, reframe existing markets and categories, and tap into adjacent markets and consumer segments;
- **Disruptive:** entirely new products and services to new markets and business models with unmet and emerging need.
- **An holistic innovation ecosystem:** Due the number of key drivers requested when developing innovation, open the innovation processes for external ideas, knowledge and capabilities:
- Leveraging the technology, digital an social networking as ways of connection and collaboration;
- Consider the outside skilled workers;
- Innovation budgets are no longer maintained;
- The changes pace makes in-house capabilities risky with lengthy development cycles;
- Consumers are more active and familiarized with collaboration and participation in innovation processes.

Figure 21 - Cloverview Integrated Innovation Model



Source: Cloverview (2010)

So, increasing the perspectives for gathering more insights and learning abilities, by involving more parties in your innovation activities and doing so can result in better, faster results will leverage innovation more than in-house innovation. An Holistic innovation ecosystem will draw on entrepreneurs, start-ups, customers, partners, venture capital firms, academic institutions, government bodies, and many other parties involving selectively those who can help you and lead to higher innovations success rates, improved and efficient ROI, high innovation speed to the market, risk reduction and sharing, brand trust and engagement.

2.2.6 Innovation culture

After studying innovation among 759 companies based in 17 major markets, researchers Gerard J. Tellis, Jaideep C. Prabhu and Rajesh K. Chandy found that corporate culture was a much more important driver of radical innovation than labor, capital, government or national culture. But for executives, that conclusion raises two more questions (Rao & Weintraub, 2013):

- First, what is an innovative corporate culture?
- Second, if you don't have an innovative culture, is there any way you can build one?

According to Rao and Weintraub (2013) *"When it comes to fostering innovation, enterprises have generally given substantial attention to resources, processes and the measurement of success — the more easily measured, tools-oriented innovation building blocks".*

But companies have often given much less attention to the harder-to-measure, people-oriented determinants of innovative culture — values, behaviors and climate. The author's stated: "*Not surprisingly, most companies have also done a better job of managing resources, processes and measurement of innovation success than they have the more people-oriented innovation building blocks"*.

As many managers have discovered, anything that involves peoples' values and behaviors and the climate of the workplace is more intangible and difficult to handle (Rao & Waintraub, 2013).

Rao and Weintraub (2013) propose new culture of innovation model is build upon dozens of studies by numerous authors. They reviewed literature in the fields of organizational dynamics, leadership, behavioral science, corporate entrepreneurship and innovation to find theoretical frameworks and models that described organizational culture and a culture of innovation.

In particular, the works of Harvard Business School's Clayton M. Christensen demonstrated to us the importance of resources, processes and values in innovation. Edgar H. Schein, professor emeritus at MIT, showed the importance of past success and its impact on values (norms) and behaviors. Geert Hofstede clarified the distinction and connection between climate and culture. Booz & Company's Katzenbach Center's work on culture is also well known. The ideas of Charles O'Reilly and Daniel Denison also influenced our methodology. Finally, Tellis, Prabhu and Chandy provided an extensive literature review of the role of corporate culture and the components of corporate culture in radical innovation. Rao and Weintraub (2013) propose the following dimensions for the innovation culture building blocks (see figure 22):

- VALUES - Values drive priorities and decisions, which are reflected in how a company spends its time and money. Truly innovative enterprises spend generously on being entrepreneurial, promoting creativity and encouraging continuous learning. The values of a company are less what the leaders say or what they write in the annual reports than what they do and invest in. Values manifest themselves in how people behave and spend, more than in how they speak.
- BEHAVIORS - Behaviors describe how people act in the cause of innovation. For leaders, those acts include a willingness to kill off existing products with new and better ones, to energize employees with a vivid description of the future and to cut through red tape. For employees, actions in support of innovation include doggedness in overcoming technical roadblocks, "scrounging" resources when budgets are thin and listening to customers.

- CLIMATE - Climate is the tenor of workplace life. An innovative climate cultivates engagement and enthusiasm, challenges people to take risks within a safe environment, fosters learning and encourages independent thinking.
- RESOURCES - Resources comprise three main factors: people, systems and projects. Of these, people — especially "innovation champions" — are the most critical, because they have a powerful impact on the organization's values and climate.
- PROCESSES - Processes are the route that innovations follow as they are developed. These may include the familiar "innovation funnel" used to capture and sift through ideas or stage-gate systems for reviewing and prioritizing projects and prototyping.
- SUCCESS - The success of an innovation can be captured at three levels: external, enterprise and personal. In particular, external recognition shows how well a company is regarded as being innovative by its customers and competitors, and whether an innovation has paid off financially. More generally, success reinforces the enterprise's values, behaviors and processes, which in turn drive many subsequent actions and decisions: who will be rewarded, which people will be hired and which projects will get the green light.

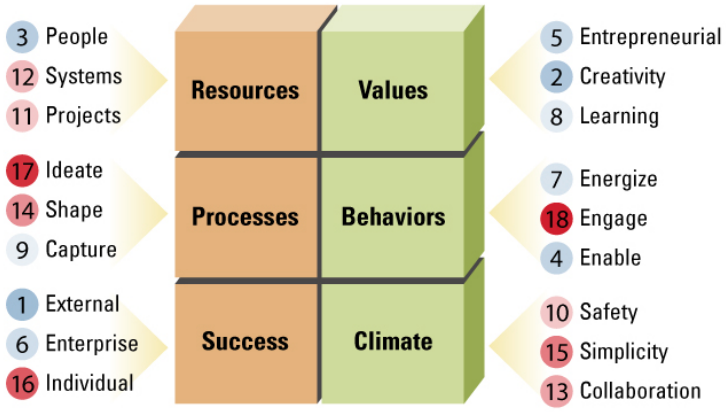
Figure 22 - The Six Building Blocks of an Innovative Culture

Source: Rao and Weintraub (2013)

In Rao and Weintraub (2013) each of the mentioned six building-blocks is divided in three factors (see figure 23), and each of these 18 factors incorporated three underlying elements (54 in total). To

better understand the model, the researchers simplify the explanation as: "*we move from those abstract building blocks toward more concrete elements, the innovative culture becomes more measureable and manageable — for example, the abstract building block of climate involves the factor of safety, which can be further divided into openness, integrity and trust*" (Rao & Weintraub, 2013). They test the metric model by given the model to 1026 managers, in 15 different companies, sectors and geographies (Rao & Weintraub, 2013).

Figure 23 - The Innovative Culture measuring drivers



Source: Rao and Weintraub (2013)

To analyze the results for an organization, the researchers calculated an average for each question (element), the distribution of the responses for each question, an average for each factor (average of the three questions related to each factor) and finally the average for each building block (the average for the three factors related to the building block). The final average of the six building blocks represents the company's overall score, which is called the "Innovation Quotient".

The application of the Six building blocks model, lead Rao and Weintraub (2013) to several main findings and conclusions can be summarized as follows:

- **Ranking information** - Executives reported that the most important value of the Innovation Quotient assessment is its ability to rank the factors and elements that support innovation. This gives them an easy-to-understand scorecard that allows them to zero in on the strengths and weaknesses of their organization's innovation culture.
- **Everyone's Opinion Counts** - People at or near the top — the individuals who make the decisions and control activities often tend to have a much "rosier" view of their

organization's culture than do mid- to lower-level managers and employees. Executives, like everyone else, naturally think that they are doing a good job. Further, executives do not always have a complete view of enterprise reality; they simply cannot see everything that goes on.

- **Elimination of Conjecture and Barriers to Change** - The bigger the organization, the more resistant the enterprise is to change. This trait seems to be most pronounced in multinational companies. Managers often blame poor acceptance of new strategies, sloppy implementation of enterprise wide projects and lack of standardized processes across geographies and divisions on subcultures within the enterprise. A structured cultural assessment using something like the Innovation Quotient survey can check the veracity of such complaints.
- **Exposing Inconsistencies Between Thought and Action** – Another useful aspect of this tool is its ability to reveal inconsistencies. For instance, we find that most senior executives rate themselves highly in terms of their desire to explore new opportunities yet do not always provide their people with the time, space or money to pursue those opportunities. Similarly, they give themselves high scores for providing the freedom to pursue new opportunities even as their subordinates describe their workplace climate as rigid and bureaucratic.
- **Pursue Change Where It's Possible** - One practical virtue of the Innovation Quotient tool is that it can be applied at any level. Even in a company with a caustic culture, local leaders can use the tool to help build islands of innovative thinking and action.
- **Using the Results** - The survey instrument is not meant to look for balance — either among building blocks or among the factors within them. Companies that are very low on some factors but very high on others can still be successful.
- This finding allow the researcher to define critical success factors towards creating a innovation culture:
- **Focus on Strengths** - Most executives want to immediately fix the negatives in the Innovation Quotient assessment, but we find it's best to build on an organization's strengths.
- **Start Small and Scale Slowly** - Managers eager to transform their cultures often try to do too much at once. A better strategy is to focus on a few things and leverage their successes into a broader transformation over time. Cultures change very slowly. For best results, leaders should aim for small victories — at least at first. Measurable results are

more powerful than arguments, campaigns and mandates: People change when they see their peers becoming more productive, engaged and successful.

2.3 Creativity window

Creativity is that characteristic of human behavior that seems the most mysterious, and yet most critical to human advancement. The capacity to solve problems in new ways and to produce works that are novel, appropriate, and socially valued is an ability that has fascinated people for centuries. Most creativity research concerns the nature of creative thinking, the distinctive characteristics of the creative person, the development of creativity across the individual life span, and the social environments most strongly associated with creative activity (Simonton, 2000).

According to Tschimmel (2010) creativity is a cognitive ability of the individual mind, which can restructure, with determined purpose, existing elements in the symbolic domain. The notion of "creativity" is already implemented in the social environment, more and more we hear the increasing need for creative thinking in various social and professional areas. Implemented in lifestyles or in the decoration of the spaces that surround us, the management in economic areas and even in methods of teaching in schools.

Dualibi and Simonsen (2009), stated that criativity is the ability to formulate new idea or answers to different problems, while, the creative process, is a technique of problem solving that can be applied to all human activities, not just the specific activity of creating good communication.

In the view of Stephanie Kwolek, quoted by Dualibi and Simonsen (2009), the creative process for innovation requires a new way of looking at things, an understanding of people and an entrepreneurial desire to take risks and work hard. To Kwolek, one must be willing to try different approaches to a problem, not giving up until you find an answer (Dualibi & Simonsen, 2009).

Similarly, Art Fry, quoted by Dualibi and Simonsen (2009), understand that creativity depended on a process based on three aspects: a certain level of knowledge in the subject or sector, strong desire to do something useful for society or for the market and aim. Argues that a creative idea does not become an innovation until it is widely adopted and incorporated into our daily lives.

Sternberg (2001) argues that creativity should not be considered in isolation from other constructs of human abilities; rather, it is best understood in a societal context. He suggests that the “common thread” in the prolific research literature is the interrelations or “dialectic” among intelligence, wisdom, and creativity, where intelligence advances existing societal agendas, creativity questions them and proposes new ones, and wisdom balances the old with the new. Yet, the many challenges in operationalizing and assessing creativity are still being confronted today. And, the proliferation of hundreds of creativity tests, some of which hold up better under psychometric scrutiny than others, exacerbate the criterion problem

for creative research. These concerns leave us asking an important question. What is it exactly that creativity researchers are studying?

It is our objective to deeply understand what creativity is, how it works individualistic or in social terms, how it can be measured in order to amplify the actual knowledge to the business, innovation, marketing and design fields.

2.3.1 Creativity within business context Milestones

Our ability to recognize the creativity involved in Edison's gate-pump seems to be innate and universal whereas our ability to generate it would seem to vary dramatically person to person. Does this matter to us as individuals? Perhaps not, as we seem to pursue our everyday lives perfectly well with whatever level of creativity we possess. Does this matter for business? Absolutely! (Kearon, 2008). According to Kearon (2008): "*Creativity is the lifeblood of business and for marketing in particular it is the alpha and omega of commercial success and ultimately financial rewards".*

Creativity and the creative process in an organizational context have been occupying the thoughts of Western business leaders and executives, politicians and academics since the late 19th and early 20th centuries. Graham Wallas, a founding lecturer at the London School of Economics and a founding member of the Fabian Society (along with H.G Wells and George Bernard Shaw) outlined in his book "The Art of Thought" (1926) what is generally accepted as the first articulated Western theory of the five stages of the creative thinking process which he defined as:

- preparation (preparatory work on a problem that focuses the individual's mind on the problem and explores the problem's dimensions),
- incubation (where the problem is internalized into the unconscious mind and nothing appears externally to be happening),
- intimation (the creative person gets a "feeling" that a solution is on its way),
- illumination or insight (where the creative idea bursts forth from its preconscious processing into conscious awareness);
- verification (where the idea is consciously verified, elaborated, and then applied).

In 1938, Alex Osborn, the O in the famous American advertising agency BBD&O, coined the term "brainstorming" to describe the ideation sessions he ran with his employees to "use the brain to storm a problem". Presciently, he noted in the early '50's "brainstorming became too popular too fast with the result that it was frequently misused. Too many people jumped at it as a panacea then turned against it when no miracles occurred. Likewise too many have erroneously regarded group brainstorming as a complete problem-solving process, whereas it is only one of several phases of idea-finding; and idea finding is only one of the several phases of creative-problem solving".

In 1948, Dr Sidney J Parnes with Alex Osborn launched the Osborn-Parnes Creative Problem Solving Methodology, the basic foundational creative thinking skills method. The Creative Problem Solving Methodology operates on the premise there are two types pf creative thinking - divergent (generating lots of options) and convergent (judging options and making decisions). This methodology evolved out of Osborn's unhappy experience with brainstorming and is a far more rigorous and defined approach to problem-solving.

In 1950, J. P. Guilford's famous "creativity" address to the American Psychological Association popularized the topic amongst American business executives when he proposed individual creativity could be psychometrically measured and the results applied for improved results in the work place.

In 1954, Alex Osborn financed, wrote, edited, printed and published 2000 copies of "Applied Imagination: Principles and Procedures of Creative Problem-Solving" which he distributed as gifts to his advertising agency clients. In what is now considered the classic text underpinning the rise of creativity and creative thinking in American capitalism post World War 2, he above all other American writers and theorists of the time articulated the American dream when he wrote.

"Competition has forced American business to recognize the importance of conscious creative effort. So much so, that more and more, heart and center of almost every successful manufacturing company is its creative research. Industrial research used to do but little more than take things apart in order to find out what caused what and why. The new research adds to such-fact finding a definite and conscious creative function aimed to discover new facts, arrive at new combinations and find new applications" (Osborn, 1954).

Using the royalties from Applied Imagination, Osborn founded the Creative Education Foundation in 1967 at the State University of New York, Buffalo State in 1967 - still the only Masters in Science program offered globally on the study of creative behavior. The Academic Journal of Creative Behavior has been publishing quarterly articles and papers from this program since its inception as well – 40 years of continuous publication of academic publications on creative behaviors.

Outstanding highlights are Abraham Maslow's "Emotional Blocks To Creativity" – the complete notes from a speech Maslow gave in 1957 to a Creative Engineering Seminar, US Army Management School, Fort Belvoir, Virginia USA in which he outlines for the first time in an organizational context, as opposed to an academic one, the importance of creativity in self-actualizing. He ends his address by posing the challenge "*we'll all have to find some way of permitting people to be individualistic in an organization*" and concludes "*I don't how it will be done. I think it will have to be a practical kind of working out, just simply trying a little bit of this and a little bit of that and trying out the other and finally coming to some kind of empirical conclusion*".

In 1969, Dr Edward deBono's essay "Information Processing and New Ideas – Lateral and Vertical was launched. It added a refreshing approach to his and Osborn's divergent and convergent thinking model. deBono's stood apart from Osborn and Parnes by adding 4 new general techniques – awareness, random simulation, alternatives, alteration – to the creative thinking process, declaring these new techniques meant "vertical thinking is concerned with digger the same hole deeper. Lateral thinking is concerned with digging the hole somewhere else".

Perhaps the most relevant essay contemporaneously is General Electric's Physicist-Artist Ned Herrmann's contribution, his 1978 essay entitled "The Creative Brain". The essay details the thinking and content behind one of the world's first organizational creativity programs for executives. Herrmann began his essay "*In my search for my place and work, I made some remarkable discoveries about the human brain…what I found was an explanation of the double existence I had been leading most of my life – with one foot in the world of big business, the other planted just as solidly in the world of art and music. The insights into the brain acted as a mirror that showed me who I was and why I behaved the way I did*".

What is particularly valuable about this essay is Herrmann's description of a Eureka moment – the brain acting as a mirror. He describes a 35 mile journey in a car during which he explores his continuing frustration with the imagines of a physiological map of the brain with its seemingly useless left brain/right brain definition as a diagram and then he has the sudden epiphany of the map as a visual metaphor for the brain as a quadrant of thinking styles.

In his research during the General Electric executive creativity program Herrmann had collected sufficient data to identify four individual thinking styles – analytical, sequential, interpersonal and imaginative. He recognized if he could map the data collected onto a visualization of the brain he could use an image of the whole brain as a metaphor for creative thinking and in so doing compare the four individual thinking styles. The result the Herrmann Brain Dominance Instrument (HBDI), a diagnostic tool still used extensively today in organizations to measure and assist individuals to identify their preferred thinking style preferences.

Creativity has been rightly recognized as a key to economic growth and social transformation in the well- document analysis by Richard Florida (2002), *The Rise of the Creative Class and How It's Transforming Work, Leisure, Community and Everyday Life*. His later work *The Flight of the Creative Class* (2005) makes the case even stronger, positing a global future shaped by communities that lure creative people by emphasizing the 3 T's: Technology, Talent and Tolerance. If Florida's thesis is valid, then developing technologies that support, amplify and evaluate creative talents could have a massive impact. Just as physicists were lured to facilities that provided powerful synchrotrons and astronomers came to work where the best telescopes were available, future creativity support and evaluation tools will entice the most innovative minds and enable them to accelerate the pace of discovery and innovation.

In 2006, Daniel Pink's book "A Whole New Mind – Why Right Brainers Will Rule The Future" (2006) in which he proposes the world is moving from the information age to the conceptual age (an age that requires creative rather than logical-analytical thinking) and for much of the current theoretical work being pursued in the emerging field of neuroscience and argues the relevant of this field of knowledge in the organizational business context.

Some commentators believe that creativity is the domain of the rare individual who arises only a few times in each century. This older notion celebrates historic figures such as Newton, Einstein, or Edison, but newer thinking proposes that every person can become creative. Eric von Hippel's *Democratizing Innovation* (2010) argues that "users of products and services -- both firms and individuals -- are increasingly able to innovate for themselves." He focuses on manufacturing, product development and communication skills", specially due the continuous growing capacity of individuals to be creative and innovative.

So with that history, that breadth and depth of academic research, the question has to be asked - why is creativity not better understood as an organizational or business process after over a century's worth of study and contemplation? What has caused CEOs to focus their attention on "creativity" as a potential solution to organizational or business complexity now and how do we "operationalize" creativity in a business context? (Kerle, 2010).

Ralph Kerle (2010) conducted a research study and report called "Are Australian Managers creative and innovative?". The research findings offered some significant and surprising insights into how managers perceived creative leadership, creativity and innovation, none more so than in the area of educating for creativity in organizations, for example:

Australian managers nominated the main attributes of creative leadership as empowerment, enlightenment, enjoyment and risk.

They drew a profile of a creative leader as some-one who was a visionary and a team player, a risk seeker who enjoyed work.

When asked what a creative leader does the overwhelming result said a creative leader is one who leads people and processes creatively (97%) as opposed to a creative leader being an individual who creates (45%).

According to the author "*What this finding suggests is that leaders in organizations do not perceive creativity as something they do. Instead it is something they think about and co-ordinate. Creativity by its very nature requires action and context, is constructed around constraints and evolves out of practice. It is identified through perception, named creative by someone other than the person practicing it."* (Kerle, 2010).

Ralph Further (2010) stated *"the naming of something "creative" is a subjective act, generally comes from peers and requires confidence, knowledge and expertise in the domain in which the creativity occurs on the part of the name. Importantly, creativity, even in perception, is subjective, only ever approximates reality and can easily be disputed.*

The author concluded: *"Management theory and business school studies may offer a framework for managers to understand organizational creativity as a concept. However they cannot create the act or phenomena itself. It is only through the act of creation on the part of the manager that creative practice emerges and evolves. This, of course, is what 20th Century German philosophers Heidegger and Gadamer call a "hermeneutic circle," that is through the very act of creating that creativity comes into being.* (Kerle, 2010).

This perception that creativity is important but is still not in practice regarding business organizational context (Kerle, 2010; Amabile 2011; Hamel, 2009), arouses complex challenges to be address by managers and leaders:

- The first challenge then for educating for creativity in organizations is to locate and find methods and processes for leaders to use to identify, discuss, reflect on and make sense of their own practices of creativity, paying particular attention to the organizational context for their practice; to the constraints the organization places around that practice and to the practice itself.
- The second is for the leadership to develop ways of synthesizing the learning's and the knowledge gained from these discussions and reflections and to make them meaningful in an applied sense to enhance the organizations goals and objectives.

According to Kerle (2010), the critical challenge therefore in educating for creativity in organizations is to develop a creatively holistically model or method enabling organizations to perceive themselves creatively.

IBM held other important study about creativity on business context in 2010. They conducted a survey of 1,500 CEOs and knew that the mainly valuable management skill was not any more "marketing" or "operations" but "creativity." Since then Accenture, BCG and other firms have established the global skill shift. CEOs state that creativeness is a critical leadership skill, but few apparently have it (Nussbaum, 2013).

There is no wonder that managers are skilled in the values of competence and the abilities of quantitative analytics. After many years of managing to squeeze out earnings, how can CEOs rapidly move to amplifying the creative capacities of their people? Bruce Nussbaum define the following steps:

- Track your practices of creativity. Businesses are pyramids constructed to endorse the effectiveness. But creativity is produced within circles — playgrounds — where a minute

number of extremely talented persons, usually in small teams, work. Most of these are formal — product development, labs, designs. These are where “creative's” are believed to work. But there are various circles that are unseen. Most large corporations have hundreds of employees who are trying things out, sharing ideas, linking accessible domains of knowledge in novel ways, below the radar of management This can occur as often on the production line as it get performed in a chemistry laboratory. But it’s not always assumed as “creativity”, and many people do not notice themselves as “creative,” even if they are. When you plan your creativity circles, they always astonish.

- Creativity requires to scale in order to produce economic value. So you also need to"recognize your creativity brokers"— people with high-quality judgment and contact to resources. Knowledgeable CEOs are the ones who can better forecast when new concepts have authentic potential; they are the “wise eyes” to harmonize the “fresh eyes” on the job. Moreover, they are the ones who can connect your creativity circles to the prototyping, economic marketing they need. Discovering these brokers can also escort to surprises. They have many formal titles, from vice president to an assistant to general manager to the CEO.
- It is essential as well to shift toward multi-generational leadership teams. In a period of flowing change, we are all immigrants to latest technologies and new moves in culture. As hard as we attempt to submerge ourselves, we basically cannot know as much as somebody who symbolizes these changes. The youthful founders of Facebook and Google were intelligent enough to fetch more knowledgeable talent as they initiated their startups. Older managers of recognized organization should be intelligent enough to do the adverse: collecting young talent to increase their potentials.
- You are also supposed be prepared to alter your consumer frame. User experience (UX) was a daring idea in its day and shifted us away from simply meeting “needs".But it is outdated. People, in the recent times, participate with firms in the purchase and design of products. “Experience” is too inert term to explain the relationship. User engagement (UE) is the latest imaginative competence for the upcoming time. Think about aura — the factors that summon you and keep you involved and design it into your services and products and as Nike and Apple has done.

Most organizations with years of forming a culture of competence cannot organically change themselves into a den of imagination or creativity. They should not try. The chances of success are very low. IBM performed it. GE may make it. P&G is still making efforts. But most others could not do it. Well-

known companies can, nevertheless,be a platform for creativity. They can learn to go outside their boundaries to recognize creativity they can influence, buy and then scale (Nussbaum, 2013).

Creative ability is like a sport. You can be prepared for it and boost the abilities of yourself and your company. If you get superior in it, you can also revolutionize it into real economic value on a huge scale.

2.3.2 Recent thinking about creativity

As we seen, the potential for enhancing human creativity has been a recurring theme of visionary thinkers such as DeBono (1990) whose 'lateral thinking' ideas have had a warm reception, internationally, but a cool reception from academics. Dan Couger's (1995) review of 22 creativity methods included the classic ones such as the methods: Preparation, incubation, illumination and verification. Recent variations, include these design steps for engineering (Adams et al., 2003, Atman et al., 2003):

- Problem definition – identify need;
- Gather information;
- Generate ideas – brainstorm & list alternatives;
- Modeling – describe how to build;
- Feasibility Analysis;
- Evaluation – compare alternatives;
- Decision – select one solution;
- Communication – write or present to others;
- Implementation.

During the past decade respected psychologists who work on creativity, such as Mihaly Csikszentmihalyi (his books include the widely cited *Creativity* (1996) and *Finding Flow* (1997)), have given a more compelling foundation. Csikszentmihalyi made two major contributions. First, his structured interviews with 91 creative people (Nobel and Pulitzer Prize winners, leading artists, corporate gurus, etc.) led to a thoughtful characterization of three key components for understanding creativity:

1) Domain: e.g. mathematics or biology, "consists of a set of symbols, rules and procedures";

2) Field: "the individuals who act as gatekeepers to the domain…decide whether a new idea, performance, or product should be included";

3) Individual: creativity is "when a person... has a new idea or sees a new pattern, and when this novelty is selected by the appropriate field for inclusion in the relevant domain".

This characterization focuses on the individual but clearly makes creativity a social process, since an individual's work becomes creative only when judged by others.

Robert Sternberg's remarkable edited collection, the *Handbook of Creativity* (1999), has drawn popular and academic interest. This *Handbook*, among other books, provides useful intellectual

foundations concerning motivations, strategies, and assessment for human creative work. A particularly appealing chapter by Nickerson offers 12 steps to teaching creativity:

- Establish Purpose and Intention;
- Build Basic Skills;
- Encourage Acquisition of Domain-specific Knowledge;
- Stimulate and Reward Curiosity and Exploration;
- Build Motivation;
- Encourage Confidence and Risk Taking;
- Focus on Mastery and Self-Competition;
- Promote Supportable Beliefs;
- Provide Balance;
- Provide Opportunities for Choice and Discovery;
- Develop Self Management (Meta-Cognitive Skills);
- Teach Techniques and Strategies for Facilitating Creative Performance.

Since many descriptions of creativity focus on the individual, it is important to balance this view with an appreciation of the importance of supporting creativity in small teams and larger communities. Scientific papers in mature fields such as physics and biology often have teams consisting of dozens of authors from multiple disciplines who contribute to a research result. So do creativity works, much often this the result of teamwork (Mateus, 2007).

2.3.3 Creativity Definitions and Principles

DeBono's (2008), defines creative thinking as: "*a new way of looking at problems or situations from a new and fresh perspective*". Although for the overall understanding of the concept other authors approach should be considered as shown in the table below (see table 4).

Table 4 - Creative thinking definitions

DEFINITION	AUTHORS
Creativity (or 'lateral thinking') is concerned with restructuring mental patterns, emphasizing/using information in provocative ways and challenging accepted ideas and notions.	deBono, E.
Creativity (or 'Synectics', connection-making) is the joining together of different and apparently irrelevant elements. It involves seeking and using direct, personal, and symbolic analogies to find new solutions to problems.	Gordon, W.J.J
Creativity is not a nebulous, ethereal 'something' but rather, a skill that can be developed and applied in organizational setting…We define creativity as the ability to make useful, novel associations.	Gryskiewicz, S.S. Holt, K.D., Faber A.M., & Sensabuagh, S.
The capacity to tolerate ambiguity and uncertainty, perhaps even to welcome it, in order to see things in a new way, to see associations and relationships that we and others have not seen before.	Kramer, P.
"Creativity is inventing, experimenting, growing, taking risks, breaking rules, making mistakes, and having fun."	Mary Lou Cook
Approached creativity by emphasizing the importance of self actualization in human behavior, holding that people were afraid to learn too much about themselves. Creative people are able to overcome those fears and the rigid pressure of society, and thus become able to free themselves to attain personal integration, wholeness, and creativity.	Maslow, A.H.
who coined the term "brainstorming", described creativity as the mental capacity "to visualize, to foresee, and to generate ideas."	Osborn, A.F.
Creativity is the capacity to create a solution that is both novel and appropriate.	Sternberg B.
Creative thinking requires an attitude that allows you to search for ideas and manipulate your knowledge and experience. With this outlook, you try various approaches…use crazy, foolish, and impractical ideas as stepping stones to practical new ideas. You break the rules occasionally…explore for ideas in unusual places…[and]…open yourself up to new possibilities and to change.	Von Oech, R.

Source: the Author

For DeBono (2008): "*creative thinking is new way of looking that also bring unorthodox solutions. They may look unsetting at first and are stimulate by both, an unstructured process such as brainstorming and a structured process such as lateral thinking*".

This type of thinking has some basic conditions required:

- A Sharp Observation;
- Postponing your judgment;
- Associative Thinking;
- Alternatives Thinking;
- Use of imagination.

Yet, De Bono (2008), related with the creative process divide the creative thinking in two main methods, the vertical thinking which uses logic processes from the traditional historical method and the

lateral thinking, which involves disrupting and apparent thinking sequence, to achieve solutions from another angle. The lateral thinking approach, involve some techniques as:

- Alternatives, which aim to look beyond obvious alternatives and how to use concepts as a breeding ground for new ideas;
- Focus, know when and how to change the focus of your thinking learning the discipline of defining the focus and stick to it;
- Challenge, the ability to break free from the limits of the traditional thinking, considering new challenges and the acting as thought the present way of doing things is not necessarily the best;
- Random Entry, by using unconnected inputs to open up new lines of thinking;
- Provocation and Movement, to generate provocative statements and use them to build new ideas;
- Harvesting, capture your creative output, at the end of a creative-thinking session, taking notes of the specific ideas that seem practical and valuable;
- Treatment of Ideas, how to develop, shape and sharp them to fit within in an organization or situation.

Regarding the creative thinking process, Olson (1986) also presents a curious approach with the name of DO-IT. This process was defined by four steps, define, open, identity and transform. The define step is composed by Mind Focus, Mind Grid and Mind Stretch, the open step is composed by Mind Prompt, Mind Surprise, Mind Free and Mind Synthesize, the identity is composed by Mind Integrate, Mind Strengthen and Mind Synergize and by a final step of Transform.

Also, Gijs van Wulfen (2013) in the book “Innovation Expedition”, present a creative process based on six steps, Full Steam Ahead, Observe & Learn, Raise Ideas, Test Ideas and Home coming.

Christiensen et all (2009) propose an creative process approach, that is associated with the Innovations DNA model - develop by this authors based on the study of the most successful innovative entrepreneurs - that is composed by five steps:

- Associating by having different disciplines in the creative process creating associations;
- Questioning by question everything and search in all aspects for the opposites;
- Observing by and discover driven approach;
- Experimentation by trying out new ideas;
- Networking by to access the resources.

Being the creative thinking process based on Individuals and Organizations both need to constantly renew their sources of information and inspiration in order to expand their knowledge and growth. David

Kelley (2007), in his book "then faces of innovation" stated that: "*in creative process have different types of personas and behaviors regarding creativity*". But one of the thinkers to write about the creative "persona" was Leonardo da Vinci. He identified seven types of profile or characteristics that a creative most posses:

- Curiosity - Curiosity is the one that ask questions;
- Demonstration - is the one with open thinking and open mind that constantly learn from his mistakes;
- Sensation - is the one that use all the senses and majorly learn from intuition;
- Summate - is the one that dare to cope with the unknown and learn from the paradoxes;
- Arte- sciences - is the one that use all the brain, the left and the right side to learn, build and manage maps of information;
- Corporality - is the one that balance the body, the mind and the movement leading to juggling;
- Connections - is the one that everything is connected and make the associations that learn from the networks and ecosystems.

Kelley (2009), reflects on the different profiles and behaviors we can recognize during a group dynamic focused on a creative stage:

- The Storyteller - the one that build internal morale and external awareness by compelling narratives that easily communicate the human values or reinforce a specific aspect;
- The Caregiver – the one that delivers customer care beyond normal services;
- The Set Designer – the one that creates the stage on which developers can perform and the one that transform physical environments into powerful tools to influence behaviors and attitudes;
- The Experience Architect – the one that move up the experience, service, product and commodity values pyramid, that designs and compel experiences and connect with a deeper level with the customer;
- The Director – the one that find the most talented people, make other people be the stars, spark the creative talent and help others;
- The Anthropologist – The one that don't ask customers but observe them in first hand, that know how to interact with services and products in an emotional and physical way, has powerful tools to unlock innovation and to inform your institution;
- The Experimenter – The one that is constantly prototyping the new ideas and seek the trial and error approach;

- Cross Pollinator – The one that explore other industries, cultures and translate those findings to fit the needs;
- Hurdler – The one that solve problems and consider it as challenges. Is the type of people that never gives up, bend the rules and stop you when you go too far;
- Collaborator – Is the one who bring more ideas and the groups together, leading the others from the middle of the pack and the one that create new combinations.

2.3.4 Individual and social creativity

To understand creativity, we need to address the individual and the social dimension of the process. The claim by Csikszentmihályi (1996) that "an idea or product that deserves the label 'creative' arises from the synergy of many sources and not only from the mind of a single person", does not exclude individual creativity. Creative actions cannot be completely planned actions; rather, they can only be situated actions, after reflecting upon the situational talk-back of the environments, either technical or social [Schön, 1983]. Therefore, individual creativity can be greatly enhanced by providing appropriate socio-technical environments [Mumford, 1987]. Creativity flourishes best in a unique kind of social environment: one that is stable enough to allow continuity of effort, yet diverse and broad-minded enough to nourish creativity in all its subversive forms.

Much human creativity arises from activities that take place in a social context in which interactions with other people and the shared artifacts are important contributors to the process. Social creativity comes alive in socio-technical environments in which communities collaborate (Mateus, 2007).

Shared understanding that supports collaborative learning and working requires the active construction of a knowledge system in which the meanings of concepts and objects can be debated and resolved (Robinson, 2010; Lealfbetter, 2008). In heterogeneous design communities, such as those that form around large and complex design problems, the construction of shared understanding requires the interaction and synthesis of several separate knowledge systems (Fischer, 2002).

Distances and diversity should not be considered as constraints to deal with but as opportunity to generate new ideas, new insights, and new environments (National-Research-Council, 2003). The challenge is often not to reduce heterogeneity and specialization, but to support it, manage it, and integrate it by finding ways to build bridges between local knowledge sources and by exploiting conceptual collisions and breakdowns as sources for innovation. Social creativity can be distributed (1) *spatially* (across physical distance), (2) *temporally* (across time), and (3) *conceptually* (across different communities), and (4) *technologically* (between persons and artifacts) (Fischer, 2005). This distributed fabric of interactions can be supported by integrating diversity, making all voices heard, increasing the back-talk of the situation, and providing systems that are open and transparent, so that people can be

aware of and access each other's work, relate it to their own work, transcend the information given, and contribute the results back to the community (as illustrated by the "collect / relate / create / donate" model (Shneiderman, 2002).

According to Kelley (2011), creativity is a skill that can be taught and learned by all without exception, this approach extends the possibilities of teamwork. As noted, collaboration is a key to the success of the process of creativity ingredient, which should integrate the solution development process individuals for whom they are addressed, in order to obtain more concrete and viable data. On the other hand, is a skill that can train, and therefore, can go evolving with respect to its success and effectiveness.

There is overwhelming evidence that research on creativity should be grounded in the basic assumption that power of the unaided individual mind is highly overrated. (John-Steiner, 2000). Although creative individuals are often thought of as working in isolation, much of our intelligence and creativity results from interaction and collaboration with other individuals, with their tools and with their artifacts (Csikszentmihalyi, 1996). In many traditional approaches, *human cognition* has been seen as existing solely "inside" a person's head, and studies on cognition have often disregarded the physical and social surroundings in which cognition takes place. *Distributed intelligence* (Fischer, 2005; Hollan et al., 2001; Salomon, 1993) provides an effective theoretical framework for understanding what humans can achieve and how artifacts, tools, and socio-technical environments can be designed and evaluated to empower human beings and to change tasks.

Creative individuals can make a difference, as analyzed and shown by Gardner (1995) in some special cases, such as movie directors, champions of sports teams, leading scientists and politicians. Individual creativity comes from the unique perspective that the individual brings to bear in the current problem or situation. It is the experience, culture, education, and background knowledge that the individual has, as well as the personal meaningfulness that the individual finds in the current situation. Creativity research should be grounded in the basic assumption that there is an *"and"* and not a *"versus"* relationship between individual and social creativity. Individual and social creativity can be integrated by means of proper collaboration models, appropriate community structures, boundary objects, process models in support of natural evolution of artifacts, and meta-design (Fischer et al., 2005). By integrating individual and social creativity, support can be provided not only for reflective practitioners but also for *reflective communities*.

2.3.5 Creative being more then creative thinking

"*There is a lot of technical and objectivity in art, as there is a lot of passion and intuition in science*" (Robinson, 2010).

To understand how the creative process is triggered in the brain will it should enter a more cognitive dimension of research. It is proved that this process involves more than linear and logical thoughts that

dominate the western perspective of intelligence. Some authors linked to the investigation of creative thinking, as Pink (2006.2010) and Robinson (2010), believe that the physical brain is constantly evolving and as it ages, continues to build neural pathways that allow a potential and continuous path for creative thinking.

The same authors argue that creativity is always a dynamic process and it can support in many ways to think at the same time and not just through the brain. Also depend on physical processes associated with intense feelings, intuitions and resulting from a coordination of hands and eyes, body and mind. Robinson (2010) even believes that all individuals are born with creative capacities that must be developed and attempts to corrupt the idea that only special people can be endowed with creative powers. "Creativity is part of the scope of the special activities that belong to creative fields such as arts, design, or advertising. Indeed, these areas tend to require a high level of creativity, but science, mathematics, engineering, entrepreneurship, sport or human relationships also. The point is that we can be creative in everything that involves intelligence" (Robinson, 2010).

Creativity leads the imagination to another level because it activates it to produce something new and to reflect on new problems. To Robinson (2010) creativity is applied imagination. In this sense, according to the author can be creative in everything that involves intelligence: music, dance, math, science, business, human relations, among others. It should be noted that the manifestation of creativity in different ways is because of human intelligence is so multifaceted and varied. In his view, creativity is the best example of the dynamic nature of intelligence and can appeal to all areas of the mind and being, implying that several processes are interlinked, as the generation of new ideas, the imagination of different possibilities, the consideration of alternative options and the evaluation of new prospects. These processes interact with each other there is generally a balance between idea generation, selection and clearance of the same in a creative work.

Robinson (2010) goes further in his study and further supports the idea that the creative teams can often achieve better results than isolated individuals, since they show the two key characteristics of intelligence: Diversification and Dynamism. Diversification because they are composed of very different people with different but complementary talents and Dynamism because they are able to use their differences in a positive way, through a process where their strengths are complementary, offsetting the weaknesses of each other. They encourage each other and accept the criticism as a spur to improvement.

According to Robinson (2010), the daily experience shows that human intelligence is multifaceted and varied, explaining in three characteristics:

- Not limited to verbal and mathematical reasoning. In fact, these skills are important but are only one of the modes of intelligence express themselves. Intelligence can reveal itself in things that have nothing to do with numbers or words;

- The human brain is very interactive, using various parts of this organ in any task that is performed. Indeed, it is the dynamic use of the brain (in seeking new connections between things) that the great revelations occur;
- Intelligence is quite distinctive, and each one of us uses it in a different way. This is as unique as a fingerprint.

Following this line of thought, investigations of Pink (2006, 2010) also indicate that the future is in the hands of a new kind of person with a new intelligence: the creative and empathetic individuals whose reasoning favors the right brain. According to the author, we are witnessing a transition from a society centered in the Information Age, with linear logic to an economy where creative, empathic and holistic thinking skills systems are predominant, the Conceptual Age.

"These new times characterized by a new way of thinking and looking at life that values and attributes define concepts like high concept and high touch" (Pink, 2006):

- The characteristics of "high concept" englobam the ability to recognize patterns and opportunities, to create beauty in artistic fields and emotional generate a satisfactory narrative or idea to combine seemingly disconnect in something new.
- The "high touch" capabilities include empathize hair others, understand the subtleties associated with the interaction human knowledge to find satisfactory of food within themselves and their own advantage to help others to faze him and, still, um sense to pursue for life for woolen daily routine (Pink, 2006).

For Pink (2006,2010) the future is even the democratization of design discipline that involves both hemispheres in order to promote the expansion of creativity and artistic sensibility to different areas. The author explains this idea through three arguments:

- Due to rising prosperity and technological advances design expanded its territory (formerly reserved for specialists) and allows most people share this knowledge;
- In an era of material abundance, the design became crucial to most modern enterprises, because it is a way to differentiate their products and create new markets;
- As an increasing number of people build sensitivity to the development of design thinking, it will be increasingly possible to use it for its purpose: to change the world.

2.3.6 About measures of creativity

Measurement is a process of assigning numbers to some phenomena, which ideally are reliable, meaningful, and valid. Assessments, on the other hand, involve appraisal and comparison, which are used to make judgments and decisions about the people being tested, such as which students should or

should not be accepted into a program for the gifted and talented. Measurement and assessment are not synonymous (Kearon, 2008).

At best, reliable measurements of particular constructs should be only one component of any assessment.

Different creativity tests measure different constructs within the complex intellectual and affective concept of creativity; problems arise when one measure is inappropriately compared against another. Torrance (1984), the originator of the best known standardized creativity tests, cautions against exclusivity of objective measurement in assessment. He recommends that creativity not be the sole criterion for decision-making, that multiple talents be evaluated, and that culturally different individuals be given tasks that evaluate "the kinds of excellence that are valued by the particular culture or subculture" of the individuals being evaluated. Even within the limited context of objective measurement, using multiple measures helps to insure that the assessment discriminates between individuals and not against them.

A. Measures of the Creative Process: Divergent Thinking

Traditionally, the measurement of a person's intelligence had been used to determine who among the population were gifted. Yet, traditional intelligence tests do not require much creative or divergent-production thinking, which leads to the hypothesis that creativity and intelligence are separate constructs, requiring separate measures. Traditional intelligence tests primarily measure convergent thinking, the kind of thinking used when a person must "converge" on one right answer to a question or problem.

Divergent thinking, in contrast, is the sort of thinking that produces multiple responses to a question and which produces novel ideas and unusual responses to questions. Divergent thinking is cognition that leads in various directions, some conventional, and some original. As explained by Runco (1999), "Because some of the resulting ideas are original, divergent thinking represents the potential for creative thinking and problem solving". Thus, to the degree that these tests are reliable and valid, they can be taken as estimates of the potential for creative thinking, but cautions should be taken when inferring estimates of future creative production.

In the 1960's, J. P. Guilford and E. Paul Torrance developed and employed batteries of divergent thinking tests used in the early study of creativity, which are widely used today.

B. The Guilford Battery

Guilford's battery of tests, based on his Structure of the Intellect model (Guilford, 1962) differentiated among 180 different kinds of thinking, including many forms of divergent thinking. The abilities most relevant for creative thinking are to be found in the divergent production abilities that allow information to be generated from information; and transformation abilities, which involve revision of what one experiences or knows, thereby producing new forms and patterns.

C. The Torrance Tests

Although Torrance would later acknowledge that creativity "defies precise definition" (Parkhurst, 1999), his early attempts at operationalizing creativity for research purposes centered on problem-solving. He wrote:

(…) *I have tried to describe creative thinking as taking place in the process of sensing difficulties, problems, gaps in information, missing elements; making guesses or formulating hypotheses about these deficiencies; testing and retesting them; and finally in communicating the results* (..) (Torrance, 1965).

The Torrance Tests of Creative Thinking consists of nonverbal and verbal forms, Thinking Creatively with Pictures and Thinking Creatively with Words, which are suitable for grades kindergarten though graduate school to assess four creative abilities: fluency, flexibility, originality, and elaboration. The nonverbal forms consist of three sets of activities which require subjects to draw lines to elaborate on a single shape, to draw lines to complete a picture, and to draw as many different pictures as possible using the same shape. The verbal forms consist of six activities that require subjects to generate questions, alternative uses, and guesses. Each of the activities in each of the nonverbal and verbal forms is timed and scored for fluency, flexibility, and originality. The nonverbal forms are scored also for elaboration[1](Torrance, 1988).

Measuring creativity in isolation from other psychological and contextual variables is also problematic. In a groundbreaking examination of creative people, Csikszentmihalyi (1996) studied one hundred individuals who had produced works that were publicly acknowledged as creative and who had all impacted their culture in some important way. In this comprehensive study of scientists, artists, writers, educators, politicians and social activists, engineers, and religious leaders, he found that the first and foremost characteristic of creative individuals is mastery of a domain of knowledge or skill. Without mastery of a domain, diverse thinking or ideational fluency are not likely to lead to creative products. These creative individuals, for the most part, had normal childhoods and families that provided them with a solid set of values.

Csikszentmihalyi (1990,1996) has concluded that the major distinguishing characteristic of creative people is the capacity to experience "flow," that experience of timelessness and oneness with the activity in which one is engaged. In a flow state, people have a sense that their abilities are only just equal to the

[1] Torrance, reported on a 22-year longitudinal study in which scores were correlated with accomplishments in adulthood with validity coefficients of .62 for males and .57 for females. Although these coefficients demonstrate only moderate predictive validity, Torrance notes that they are commensurate with, and sometimes even higher than, coefficients for intelligence in predicting adult achievement. Two decades of research establish the validity and reliability of the TTCT and demonstrate the appropriateness of including divergent measures in a multifaceted approach to assessing creativity.

challenge that the project provides; therefore, they are caught up in the process of creating in order to enhance the flow state.

In addition to these characteristics and life conditions that enhance creativity, certain psychological conditions can block creativity. Although creative individuals often are considered to "live on the edge" and generally choose more independent lifestyles, this may lead to substance abuse and other self-destructive behaviors that dull creativity.

Finally, environmental variables interact in important ways with cognitive variables to produce creative behavior (Piirto, 1998). It has long been observed that certain communities at certain times in history seemed to give rise to a great many creative individuals: fifteenth century Florence, the Harlem Renaissance, and San Francisco in the 1960's are examples. The presence of patrons, the support of a subculture of creative individuals, the possibility of freedom of expression, and the availability of materials and resources necessary for creative products all play a part in the emergence of creative behavior in individuals of talent. Gender, race, and class can all be barriers to the expression of creativity when low expectations and stereotypes discourage otherwise talented individuals from pursuing their ideas and fulfilling their gifts.

Piirto (1998) reviews the characteristics of creative adults in particular domains in Understanding Those Who Create. Artists tend to be more impulsive and spontaneous than other creative people; writers tend to be more nonconforming than other types; architects tend to be less flexible than others; musicians are more introverted than others; and inventors and creative engineers tend to be better adjusted on the whole than other types. Therefore, it may be important to consider personality characteristics associated with particular domains in attempting to predict creative behavior, rather than seeking one creative personality type that fits all creative occupations.

Amabile (2001) encourages creativity researchers to go beyond the assumption that individual creativity depends primarily on talent and to consider environmental influences. Her componential model of creativity (Amabile, 1983; Hennessey & Amabile, 1988), which proposes three major components of creativity - skills specific to the task domain, general creativity relevant skills, and task motivation – provides a useful way to conceptualize the importance of the social environment in creativity, which can support or undermine the intrinsic motivation to create.

2.4 In short

This chapter can be resumed by the following summaries:

1.The Era of People and the Spirit of Collaboration requires a cultural change in management. Collaboration is vital not just because it´s a better way to teach and train people, but because learning to

collaborate is an intrinsic part of providing efficiency, issue resolving and lifetime learning in an ever-changing interlinked economy (Tapscott, 2013).

The function of business must be redefined as generating shared value, not just turnover per se. This will show the next sign of innovation and output growth in the international economy. It will also redesign entrepreneurship and its relation with society. Conceivably most significant of all, learning how to generate shared value is our best opportunity to legitimize business once again. It can done by employing the best endowment, giving appropriate incentives, widening coursework to build up talent, using expressive intelligence to attach each individual, evaluating performance carefully, and keeping hold of those who clear the bar (Goleman, 2009).

Regrettably, the present conservative rules overlook the primary act of good management: managing for development and progress (Amabile & Kramer, 2011). When one does not manage for development and progress, no amount of emotional intelligence or inducement planning will save the day.

Communityship needs to be reinforced in many companies today. This doesn´t mean that we have to put it on a platform, in place of leadership. What we require is balance. We would do fine, therefore, to see forces as working simultaneously in a community responsible way to get past the narrowness that exists in many companies. A strong society stabilizes leadership, citizenship and communityship (Mintzberg, 2009).

2. Management cannot be considered an untouchable myth.

As Stewart (2001) affirms and Birkinshaw (2010) confirms, traditional management practices are falling out and are at crossroads. Radical management (Denning, 2010) is needed to introduce shifts: (a) in the power between buyers and sellers; (b)in managers being an organizer to being an enabler; (c)in dynamic joining the needs and desires of customers; (d) in acting from quality to values driven practices; and (e) in communicating not by request, but rather by conversation (dialogue).

Management has to adapt to an open culture giving more relevance to customers, creating relationships (Kawasaki, 2011), changing from an inside-out to outside-in perspective, producing a constant flow of new value for its customers (Hamel, 2012; Amabile et al., 2011), exceeding their expectations and satisfying them.

In order to produce this new management practices, a company needs to boost worker morale (Amabile , 2011) incentivizing autonomous and collaborative tasks, and releasing the employees full talent, creativity, energy and intrinsic motivations (Pink, 2010). This shift can be accomplished by: (a) systematic work in self-organized small teams; (b) defining the work goals based on customers, with passion and clarity; (c) transferring power to employees and to hold them accountable; (d) recognizing performance achievement and remunerate fairly employee practices.

The management role changes from being a controller to becoming an enabler. Changing bureaucratic procedures to *dynamic linkage* (Denning, 2010). Working in short cycles and interactions with defined objectives to achieve via *user stories* (Cohn, 2004), with retrospective reviews.

In the end the management of organizations should create shared value (Porter et al., 2012). Bringing business and society back together, leading the creation of new social models for the redistribution of wealth, redefining products and services, productivity and collaborative industry networks, for the global economy. This shared value should constantly be measured by contrasting business results with social results tracking the insights to unlock new value for all.

3. Companies are changing into Communities

Organizations are changing into communities of interest and communityship (Mintzberg, 2012) with all its stakeholders, listening and dialoguing constantly, acquiring new criticisms and insights for their sustainable development and innovation.

Open innovation is the new business model for action, a framework of engagement with customers and end-user research interactions in a social game of shred signification to mutual gain (Lansing et al., 2010). The constant inclusion of insights from end-users in the innovation process is essential for the understanding of meanings about the social and cultural business aspects, strategies, technological and market trends.

Participation and collaboration are the most important trends in social innovation (Benkler, 2006), therefore networking is crucial for organizational and social development. Mobile technology communication, and the very fast growth of ICT, have boosted the worldwide participative and collaborative flow between individuals and with organizations.

4. Creativity and creative intelligence are determinant drivers for management change

Creativity and creative intelligence are, today, two determinant concepts in the organizational context. Processes of business are in a conceptual age (Pink, 2006) of incorporated creativity and leadership, faced with complex challenges: (a) to find methods and processes for the leaders to employ; (b) to develop synthesis of the knowledge gained to be incorporated into the business practices; and (c) to develop an holistic modelization for the organizational perception and use of creativity.

Therefore creativity is not enough for producing economic value unless the *creativity brokers* (e.g. the more engaged and creative stakeholders) are recognized and motivated across the whole organization environment. It should be inclusive of user-experience flows of ideas and criticisms, the

organizing of engagement dynamics to develop products and services (co-creation), and an organizational creative intelligence culture for real economic value.

From this chapter it can be learnt for IDEAS(R)EVOLUTION methodological development the following aspects:

- Organizational traditional management practices are shifting into Radical management structures: working with progressive principles in small task forces, highly engaged and autonomous, where managers are enablers rather than organizers and controllers; promoting collaborative practices, participation of all stakeholders and shared value.
- Employee's achievements need to be more prominently recognized and rewarded, changing the mind-sets, attitudes, promoting intrinsic motivation and meaningful sharing.
- Management practices should change from value oriented to values pursuit, by Radical transparency (e.g. real-time information, concern and accountability) and continuous self-improvement. Communications must change from a command mode to a conversation mode (e.g. storytelling).
- New social models of organizational functioning are in development with society involving the incorporation into the business processes of an outside-in innovation continuously flow through dialoguing and the co-creation of new value, client satisfaction and recommendation.
- Creativity alone is not enough to be recognized within the organization processes; it needs to be turned into creative intelligence (all kinds of inputs, resources, ideas and criticisms) to be shared and implemented at all levels of the organizational structure and nurture sustainable development.

3 CHAPTER - CO-CREATION, DESIGN THINKING AND MARKETING

In this chapter we discuss the connections between co-creation, design thinking and marketing that provide the basic conditions, models and tools that enablers IDEAS(R)EVOLUTION methodology to be implement with success. It is also our goal to state the necessary refocus of organizational in creative processes, collaboration and participatory paradigms. These knowledge areas provide us with a full understanding of today's relevance on generating innovation in a "from people to people" systemic approach.

3.1 Co-creation window

Businesses in the present economy have to endlessly rediscover themselves in order to familiarize with increasingly dynamic and complex market realities (Hamel, 2013). Standardisation makes it complicated for organizations to distinguish themselves from opponents. Markets are more splitted than the previous times, and customers have unparalleled access to networks and information. At the same time technologies have shaped new modes of creation and innovation that allows and encourages superior degrees of contribution and association (Humphreys et all, 2009).

Customers are both asking greater levels of personalisation in their utilization and consumption experience and putting businesses under rising pressure to co-create value with them. This is reinforced by customers:

- Accessing and seeking information online, across geographic limits,
- Offering unwanted feedback to firms,
- Involving in thematic customer communities, including those nurturing consumer word-of-mouth,
- Co-creating or 'Experimenting' with other customers to discover their own resolutions to issues (Prahalad & Ramaswamy, 2004).

The idea of co-creation is not utterly latest. In the late years of 90s, C.K. Prahalad and V. Ramaswamy (2004), discussed the importance of co-opting customer competence when developing new products and services. They have observed that the customer was radically converting the industrial system. Internet has played a vital role as consumers have been more and more engaging themselves in an explicit and active conversation with producers of services and products. What is more, that dialogue is not being controlled by companies anymore (Prahalad & Ramaswamy, 2004).

Today, firms that continue with a conventional product and service centric approach to value creation will be relegated to squeezing as much costs from their value-chain activities as possible. Co-creation offers a different path, one that can lead toward sustainable value and growth (Ramaswamy V., 2009).

"What shall we do together?" This is the crux of the new partnership paradigm: Through co-creative engagement platforms, a company enriches its company-customer interactions, engages in deep dialogues with its market and co-creates different types of contextualized experiences with its customers (Ramaswamy V. , 2009) .

The Future of Competition, the book written by V. Ramaswamy & C.K. Prahalad in 2004, foretold of this massive paradigm shift. Since its publication, academics have continued to explore and expand the co-creation paradigm, working with companies to embrace the power of value co-creation and capitalize on its related concepts of engagement and interaction, has shown in table 5.

Table 5 - Co-creation Authors Synthesis

Selected co-creation examples mentioned by commentators[xiii]		
Company Name	**Co-creation example**	**Source**
BMW	'M division' for customisation of cars, also leading to general product improvements; engineering challenges: collaboration between customers and BMW engineers	Gloor and Cooper, 2007
Ducati	Tech Café Virtual Customer Environment for product conceptualisation	Nambisan and Nambisan, 2008 / Sawhney et al, 2005
Eli Lilly	Internet-based platform to support collaborative innovation involving pharma customers (patients doctors, clinicians, researchers, health care providers)	Sawhney et al, 2005
IBM	Worldwide partner innovation centres to facilitate collaborative innovation	Blazevic & Lievens, 2008
IKEA	Customers can design their own kitchens in interaction with a trained sales representative	Wikström, 1996
LEGO	LEGO Factory for personalised LEGO models and sharing/ co-creation of virtual LEGO models with other consumers	Zwick et al., 2008
P&G	P&G Advisor programme where consumers contribute to product development (try new items and provide qualitative feedback)	Blazevic & Lievens, 2008 / Sawhney, 2002
Philips Electronics	Collaborated with software 'hackers' for re-programming of 'Pronto' universal remote control by providing access to programme files, codes and other information	Prahalad & Ramaswamy, 2004
PSK ('Centre for Creative Art')	Co-creation as a strategic tool for organisation learning and innovation	Chung, 2009
Samsung	Virtual Product Launch Center' to enlist customers' help in diffusion of new product information; shaping peer customers' purchase behaviour	Nambisan and Nambisan, 2008
Starbucks	Business model where value is in experience (determined by the customer)	Lusch et al, 2006
Threadless.com	Customers that submit, inspect, and approve t-shirt graphic designs	Elofson & Robinson, 2007
Unilever	Involving consumers in co-creation of concepts, packaging, advertising and activation	Medeiros and Needham, 2008

Source: Humphreys et all (2009)

Yet, while these researchers have found that people around the world are prepared to help companies leverage their vision and get involved and co-create with them, it would seem that enterprises are mostly not. Companies have to stop thinking of individual personalities as inert receivers of value, and

involve them as co-creators of value. Furthermore, the state of mind of management is the most difficult to change, as is envisaging business models around co-creation (Ramaswamy, 2009).

Knowing the fact that interactive technologies have altered the behavior of people, a minute but rising number of firms have requested consumers to take part directly in the design of services and products. In doing so, these leaders have revealed that other stakeholders, as suppliers and employees, would not sincerely contribute in customer co-creation if they are not allowed to produce value for themselves, too. That necessitates giving them the chance to plan and administer their own work experiences and to help recognize and resolve issues(Ramaswamy & Gouollart, 2010).

Co-creative enterprise's payoffs are greater productivity and lower costs, creativity, and employee turnover, and sources of revenue and new business models.People are intrinsically creative and want to involve themselves with companies; they do not wish to acquire products and procedures forced on them. And credit goes to interactive technologies, they now look forward to to be able to converse directly with one another and shape and share their own understandings (Ramaswamy & Giouollart 2010).

During last ten years, many of other companies—including Dell, Starbucks, Procter & Gamble, Cisco, Unilever and Sony— have accepted "customer co-creation" and revealed something vital: Creating new experiences for end consumers frequently requires scheming better experiences for inside players, a fact regularly overlooked in traditional process analysis.

All this researchers identified on the previous table (table 5) focus on to emphasize how companies had to go beyond simple dialogue with the consumer and realize that what consumers wanted more than products was meaningful experiences. Therefore, companies had to find ways to optimize their customer experience, and afford opportunities for individuals to engage with firms at different levels.

The purpose of co-creation is to improve organisational information procedures by linking the customer in the formation of value and meaning. Co-creation smudges the boundaries of the company by 'outsourcing' value formation and innovation to the customer. Co-creation changes the customer into a dynamic partner for the formation of future value. This mutual relationship influences both company and customer. It re-shapes the method of thinking, innovate and interact. clientele are gradually becoming more change agents of the company, as well as the real owners of organisations' key means of production: knowledge. For the company, involving customers in the value-chain guides to a smearing of boundaries between development and research, customer research and marketing.

When performed efficiently, co-creation provides four key advantages to organization and their people:

- The authority for employees, consumers and other stakeholders to participate in new experiences of value;

- The authority for employees, consumers and other stakeholders to decrease risks and costs;
- The authority for managers to boost strategic returns and capital for the company;
- The authority for managers to decrease costs and risks for the company.

It can be decided collaboratively with the contribution from all stakeholders what seeds to plant and handle their risk. The co-creation strategy lets them take into account: (a) adverse weather conditions or another type of external factors or (b) the organization's internal health. They can form, value proposals and growth plans, drawing sustenance from the global network they have cultured. Furthermore, through co-creation, companies can observe and determine performance and growth. They can have a direct impact on their own environment, its governance and organization as well.

But to gather all these advantages, organizations have to enlarge their mindset and exercises of organization and management. They must go further than processes and, to:

- Communications as the focus of value formation;
- Ahead of the capability base of the company and its suppliers;
- To networks of communities and company of individuals as the foundation of competence;
- Ahead of service and product offerings,
- To significant experience surroundings as the foundation of value to individuals.

Ahead of business procedures, to co-creative meeting platforms as the means of fabricating advantage.

3.1.1 Origins: the intellectual roots of co-creation

Co-creation can be observed as a re-uniting of features of management and marketing theory, techniques and psychology derived from group decision-making, knowledge processes and innovation:

- Co-creation and the psychoanalytic tradition

At the bottom of co-creation are methods for imaginative play, which look like both psychotherapy and group-decision making. Co-creation in business surroundings eradicates the limits between the firm and its consumers; just as in psychotherapy analyst is capable of being both object and subject as they imitate on their requirements, wishes and distinctiveness. Co-creation also recognizes customers' subjectivity, which is intrinsically idiosyncratic, experience-based and contextual.

Co-creation assists the relationship between company and customer, while fabricating shared meaning and a sense of objective. Since the free, 'safe' and unimpeded space is not usually available in social surroundings and environments such as official organisations, co-creation is dictated by facilitation. By staging encounters (both on- and offline), facilitators promote the intermediary space essential for co-creativity to open out and achieve something.

- Co-creation as knowledge process.

Co-creation also symbolizes a new tendency in innovation rehearsal, customer relationship management and marketing innovation. In a technology-enabled universe of interlinked customers the consumer holds growing knowhow (Maklan, Knox, & Ryals, 2008). Customers are no longer inert recipients of brand offers, but able to reject or accept company claims pedestal on their own knowledge and experience (Ind & Riondino, 2001).

This is particularly obvious in a situation of brand identification, product reviews, and loyalty, as well as social responsibility and reputation of corporate.

Making the consumer a co-creator or co-producer aspires to produce more value than through conventional transactions. This entails a long process of relationship-building, and it is usually supposed that a breakthrough is more likely to happen with more intense and frequent discussions between collaborators from varied backgrounds (Dahlsten, 2004). Co-creation also permits for the configuration of a more cherished relationship between the consumer and technology originator, as a mutual development scheme where both share their expertise (Neale & Corkindale, 1998).

As a result, it is not only the frequency of communication, but the superiority of the relationship that organizations form with and assist among their customers, which will decide how knowledge is shaped, transferred and shared.

- An iterative process - In the framework of co-creation, transfer and knowledge creation have to be understood as an iterative procedure involving the de-construction and construction of experience. As such, co-creation procedures go through a variety of cycles of value expansion.
- An adaptive framework - Co-creation can guide to upcoming pathways of value from which both company and consumer can benefit. Rather than assuming it a tool for the formation of ideas, co-creation should thus be observed as an adaptive framework that smoothens the progress of innovation in a 'boundary-spanning' way by linking consumers and other members of the firm.
- A developmental tool - Co-creation can also assist companies re-construct themselves by developing creative communities externally and internally. As such, co-creation is a procedure that can facilitate modification by intertwining learning processes and organisational knowledge with relationship building and the formation of latest meaning and value.
- Co-Creation Building Block Model – Dart.

The creation of a co-creative meeting platform consists of four essential building blocks, which are mounted in a model which is termed as DART, which means Dialogue, Access, Risk and Transparency (Prahalad et all, 2004).

- DIALOGUE - Co-creation calls for deep understanding of consumers' perspectives, which cannot be achieved without active customer involvement and dialogue. How are knowledge and understanding shared between customers and your firm? Do individuals have the opportunity to interject their own view of outcomes and their own experience scenarios into the process of value creation?
- Nurturing active and ongoing dialogue is about engaging customers on their terms and allowing them to co-construct the experience to suit their own context. The essence of true co-creation is giving customers the opportunity to engage when they want, at whatever level they want. Moreover, firms can engage with vendors and users in a dialogue to co-create the environment of the network itself, and leverage the power of co-creation within and across the boundaries of their entire business network.
- ACCESS - Access means consumers can experience value through means other than product ownership. By acquiring entrance to expertise, knowledge and tools, individuals start to steer their own experience conclusion. Access has been made possible by a new generation of extremely effectual social and technical platforms and infrastructures, which lets customers to form experiences mutually that are of important to them, like never before.
- RISK-REWARD ASSESSMENT - This aspect entails that, being co-creators of value, customers will ask about more information about probable risks of services and goods in relation to both non-economic economic rewards. Yet, individuals more and more want to know about the benefits versus the risks. Therefore, individuals will ask for more information about possible risks versus the rewards of involving in new communications, especially those that produce personal data.
- TRANSPARENCY - Interaction practices between the individual and the company must be clear as crystal in order to fabricate trust. Without trust, customers will keep their opinions to themselves and rely on more onto essential information. Transparency demands that, in accumulation to companies creating new business value by involving individuals in "outside in" co-creation right through the design procedure, companies must also open up main company procedures to customers. This "inside out" step is essential to fabricate mutual trust amongst all parties. When consumers, companies, partners and other external stakeholders set up combined accountability across the

whole ecosystem, they start to make commonly valuable decisions and open new sources of value, particularly in the sector of citizens. This grant social legitimacy and helps companies better manage the so-called Triple Bottom Line – economic viability combined with environmental stewardship and social progress. As sustainable economic development gains currency, this aspect of co-creation is becoming increasingly relevant.

3.1.2 Co-creation and management.

Co-creation alters the way organizations think about operations and policy. In traditional approaches, processes and activities are the two edifice blocks of business structure. Each step in the process or link of the value chain is reviewed on its economical qualities, which leads organizations to manufacture where the price is the lowest or to cut steps out to save money and time; offshoring manufacturing can be an ideal example in this regard. The knowledge of people that could guide to new sources of new business models and competitive benefit are mostly ignored.

Reengineering thinks mainly about identifying “pain points” that becomes the reason of inefficiencies in the organization, which are bounded (the company, not the individuals affected, describes the problem and the process), negative (the easiest job to perform is to repair what is wrong), and incremental (in spite of messianic invocations about “clean sheet design,” almost all reengineering projects begin with “as is” view of the procedure and its inadequacy, limiting the range of change). Co-creation has none of that restriction: The people concerned with redesigning work visualize new, optimistic experiences for themselves and produce interactions that did not exist in the past—as the websites and informal community sessions that the European bank’s junior advisers and target consumers dreamed up. Furthermore, co-creation evades other significant disadvantages of conventional strategy formulation.

We believe that traditional thinking about business scheme, design and strategy undergo from the three following limitations:

- It is exclusively explicit on the economics of the company and its industry. In this world, the company fights to appropriate as much of its value chain’s and industry’s returns as it can. Conventional tactical moves are likely to be highly big and visible—taking the shape, for example, of attainments or huge investments in new technologies. But opponents can oppose these moves by obtaining the next best applicant or investing similar amounts in the same technologies. With co-creation, the cautious interlace of new interactions between new experiences and stakeholders tends to stay below the radar screen of conventional strategists. However, because these experiences and interactions are difficult to check and copy, they frequently can give a more durable source of advantage.

- It fails to permit the opportunity of co-creating an ecosystem whose associates all win. Plan formulation in the co-creation theory, on the other hand, begins with a focal point on the whole ecosystem—not the individual company's position in it—and attempts to visualize a new value chain that paybacks all players, including, of course, the firm itself. The top concerns are rising the pie and upholding the vitality of the ecosystem; exploiting the company's slice of the pie is secondary.
- It supposes that a plan or strategy will be wholly defined at the outset, though unsure situation often makes that unfeasible. In the co-creation concept, strategy comes out gradually through a procedure of detection by the individuals in the company. A company starts out with a planned objective and target consumer whose requirements it is trying to meet. In pursuing that objective, the company solicits the contribution of the members of its ecosystem by motivating to develop their lot, as well as its own. The full strategy or plan can be exposed only through a real procedure prepared by the firm but executed by the stakeholders themselves.

Rising markets are a case in point. As managers have revealed, traditional business models built to serve developed economies often cannot be functional in emerging economies, where expenses must be an order of magnitude lower if the company is to survive and the infrastructure for servicing and distributing goods is often lacking.The new concept of co-creation presents a massive chance for enterprises that can work out how to harness it. Individuals are far ahead of many companies in their keenness to engage in co-creating value, and companies must now react. Managers familiar to focusing on process competence and the defence of the competitive advantage in their value chain are encountered with the challenge of scheming new cooperative interactions and building latest engagement platforms, creating new experiences for all stakeholders (Hamel, 2012; Humphreys et al, 2009; Porter et al, 2011).

Certainly, the biggest confronts to getting managers on board are intensely ingrained behaviors and attitudes. The initiative is start small. Start with a stage that focuses on the experiences of only a few key stakeholders and a precise purpose like gathering consumers' needs for a new product, getting better order fulfillment, or discovering the best sales pitch for a new offering. Then let the perimeter of co-creation logically enlarge over time to include a broad variety of experiences and experties for those stakeholders and then new stakeholders.

The next table 6 summarises the mindset shift from traditional to co-creative strategy.

Table 6 - From Traditional to Co-creative Strategy

	TRADITIONAL STRATEGY		CO-CREATIVE STRATEGY
VALUES	Creates value by delivering defined customer experience to targeted customer set		Creates value by constantly enhancing experiences for all stakeholders
GOALS	Establishes strategic goals at the outset and doesn't significantly change them		Uses the initial strategic goal as a starting point and lets the full strategy emerge over time
KEY FOCUS	Focuses on the interests of the firm: that is, how the firm can maximize its share of the created value relative to the shares of its industry competitors and the other members of its value chain		Focuses on the interests of all stakeholders and how the ecosystem can maximize the size of the pie; maximizing the share of value captured by the firm is secondary
ADVANTAGE	Achieves advantage through realizing economies of scale before competitors do and making big, bold moves (such as acquisitions and investments in proprietary assets)		Achieves advantage through the increased engagement of stakeholders and by continually building new interactions and experiences, which lead to higher productivity, higher creativity, and lower costs and risks

Source: Adapted from Ramaswamy & Gouollart (2010)

3.1.3 Co-creation and innovation

Innovation is beginning to distinguish the value of implicit knowledge and intuition, opening up products to redesigning procedures, and producing active dialogues with customers:

A. Forethought and intuition

The way we know invention is altering. The particular shift can be epitomised by three different trends (Thrift, 2006):

- The mobilisation of forethought;
- The co-creation of products with customers by triggering their ingenuity,
- The production of space that promotes innovation.

Consideration, according to Thrift, can be seen as a type of tacit knowledge rather than explicit, proper knowledge derived from cognitive procedures. Ever more, businesses have approached value implicit thought or intuition as a source of expertise; Malcolm Gladwell's bestselling book Blink can be an ideal example in this regard. This is particularly factual for big companies.

B. The collective intelligence of consumers

Customer knowledge, derived from experience, is being considered as the main asset. Companies are marketing and crafting products in ways that attract more to the emotional side of customers. As per this view, co-creation between consumers and firms, as well as consumption and production, is about beating successfully into the combined intelligence of customers. With the help of information technology, which composes communication places like online user communities possible, co-creation agrees for a nonstop process in which goods are recast or tuned.

C. The dominance of 'value co-creation'

Innovation or invention, though, is just one feature of co-creation. In fact, co-creation has been linked with a rather mixed bag of marketing literature and thinking in the business, varying from innovation with consumers to the 'experience economy. 'The idea of 'co-creation of value' has turned out to be a prevailing idea. It happens whenever consumers interrelate with products or companies and thereby have a vigorous role in determining their experience and ultimate value insight. This understanding constructs on types of dialogue that are on the mount and obvious in a range of state of affairs. If infrastructures for an in-progress dialogue with consumers are in place, managers can put in value by harnessing customer capability, shaping expectations and managing personalised experiences (Prahalad & Ramaswamy, 2000).

3.1.4 Co-Creation and marketing

The way this new age of invention involves customers recognizing a move in marketing thinking towards the experience economy and service-dominant reason (Humphreys et all, 2009):

A.The Experience Economy

Both experience and dialogue are key factors of consumer-brand relations. Some have disagreed with it that the product is now 'no more than an artefact around which customers have experiences' (Prahalad & Ramaswamy, 2000), a perception which acquired centre-stage (Pine & Gilmore, 1999). Though, Ramaswamy and Prahalad (2004), argue that we need a more integrated, deeper approach that goes further than 'staging experiences,' marginal customisation or outsourcing activities. Right through the supplier-customer relationship, consumer-company interactions have to offer convincing experiences with different scopes of choice. From the viewpoint of innovation, this means that companies have to dump the conventional mindset of 'company think' (e.g. manufacturing, R&D, sales and marketing etc.) taking to the expansion of 'experience poor' and 'feature-rich' products, in support of 'customer think' (e.g. Needs, lifestyle, desires & expectations, etc.), (Prahalad & Ramaswamy, 2004).

B. Service-Dominant Logic

Instead of utility or value entrenched in goods, the new Service-Dominant (S-D) (see table 7) sense focuses on the co-creation of relationships and values. People are not anymore seen as buying either services or goods, but products that offer a service and value that relies on consumer experience. This means far-reaching insinuations for companies' understanding of consumers.

Table 7 - Service Dominant Logic Shift

From	To
Passive buyers	Active agents
Listening	Dialogue
Customers as buyers	Customers as resources
Researching need	Understanding experiences
Dependence on experts	Consumer knowledge

Source: The Author

3.1.5 Co-creation principles

The principle of co-creation is that by sharing certain experiences, all the companies concerned will obtain a better understanding of what is occurring on the other side of dealing, allowing them to plan a new, improved experience for both sides.There are four basic co-creation principle, which are (Ramaswamy & Gouollart, 2010):

- Stakeholders would not sincerely contribute in customer co-creation unless it creating value for them, too:
- For the persons involved, the value can be psychosomatic (feelings of appreciation, greater job satisfaction and elevated self-esteem) or financial (opportunities to advance, superior earnings, the attainment of skills).
- For their companies, the value is economic (higher productivity, lower costs, augmented revenues, capital base or a smaller asset) and, in a number of cases, the possibility to do social good.
- Focusing on experiences of all stakeholders is the superlative way to co-create:
- Generally, organizations emphasis on generating economic value. Victorious co-creators, on the contrary side, clearly emphasizes on offering rewarding experiences for consumers, suppliers, employees and other stakeholders. The key to recuperating experiences is letting stakeholders play a vital role in scheming how they work with one another.

- Our experience at work, for illustration, is a function of our communications with our co-workers, subordinates, bosses, consumers, HR department and suppliers. As long as we are inert recipients of procedures fabricated by the organization, our work experience inclines to be mediocre— it is not optimized for us, and we cannot manipulate it.
- When facing co-creation for the first time, people frequently think letting stakeholders make their own experience sounds like a recipe for economic destruction and organizational disorder. In fact, the contrary is true. The management of the organizations sets the general tactical direction and describes the boundaries between what cannot be cant be co-created.
- Interaction should be performed directly with one another:
- In most companies, work is sequential and hierarchical: Somebody receives an order and orders it to somebody else to complete. What gets missing is the skill of numerous individuals to have a dialogue, which is a huge loss. Most business issues are complicated, and their resolutions are not clear. To address these issues, people with a broad range of perspectives and expertise frequently need to come together to see and hear the issues first-hand and make an effort on a resolution. Deciding straightly who precisely should be at the table is easy for all time. The greatest strategy is just to request all interested parties to interrelate directly and to extend to yet others along the system.
- Companies should offer platforms that let the stakeholders share experiences and interact.
- The internet and many other information technologies have made the association among stakeholders greatly cheaper and easier. Despite this, many of businesses' IT systems do not really help persons share their experiences and expand understanding of the other key players' priorities and issues.

3.1.6 Co-creation Impacts

According to Humphreys at all (2009), different theoretical fields have been using co-creation concepts:

- **Marketing theory** has utilized co-creation pretty largely as any form consumer participation in the manufacturing of the product or brand experience and subsequently perceived value.
- **Innovation management** has highlighted the type of co-creation between consumers and companies that may take place in the commencement of the value chain, namely early product development stages.

- **The internet community** seems to have been more involved in not only customer empowerment through co-innovation, but also the self-ruled potential of mass teamwork tools like Wikipedia.

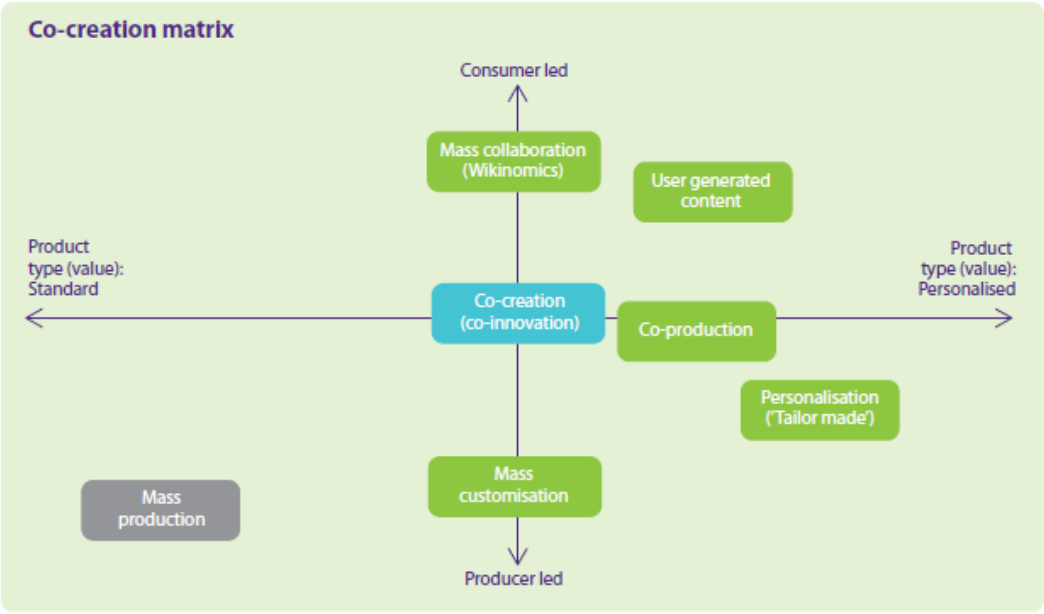
Also, associated approaches and concepts, such as mass customisation (e.g. Nike ID), open innovation (e.g. Linux operating system), user-generated content (e.g. youtube.com), mass-collaboration (e.g. Wikipedia), co-production (e.g. Ikea), and collaborative innovation (e.g. Airbus) all hold a part of either (1) consumer involvement (2) purpose-driven innovation or (3) cross-boundary collaboration.

So what do co-creation really means? Humphreys at all (2009) attempted to answer this question by bringing in two dimensions:

- The role of the company: is a procedure more producer-led or customer-led? While mass association may be largely user-driven, other advancements tend to be kicked off and organized by the company.
- The kind of value formed: is it standardised value (benefiting all consumers), modified value (e.g. Mass customisation of services or goods) or personalised value (e.g. as in mutually produced services)?

By executing these two filters underway to see how co-creation can be eminent from related concepts. The figure 24, below demonstrates where co-creation assembles and how all concepts quit from mass production (Humphreys et all, 2009):

Figure 24 - Co-creation Matrix



Source: Humphreys et all (2009)

All co-creation advancements split two main features: a) the growth of product or organisational limitations and b) the involvement of the customer. Co-creation as combined innovation with consumers adds a third aspect c) focus on co-creating latest values with consumers that are started by the company.

The advantages or benefits of co-creation cut both ways. While customers benefit from superior value and personalisation, as a result, of co-creation procedures, the motivation for organizations is about constructing competitive advantage by turning just-in-time knowledge from trade into just-in-time learning for their company. According to Ramaswamy and Gouollart (2010), the main impacts of co-creation are:

A. Access to wider, richer experiences

In novel concept development, association increases the number of sources of new thoughts in innovation. It facilitates idea generation and cross-fertilisation through shared experiences and knowledge. By giving R&D personnel superior authority to a better off stock of experiences and stories, collaboration creates a superior potential for recognising probable technological applications.

Collaborative teams bring a better body of knowledge to tolerate, permitting more quick and numerous design iterations.

B. Better, quicker, less risky innovations

Specific innovation advantages for organization that are credited to customer participation in the literature (mainly when helped out by technologies such as the internet) have included:

- Augmented speed to market,
- Higher profitability,
- Lower cost
- Greater satisfaction and better product quality,
- Abridged risk.

C. From experience to advocacy

Adding up more direct innovation results, there are also plentiful insubstantial advantages that can spring from consumers' involvement in co-creation procedures or processes. Studies have quoted, among other things:

- Augmented attitudinal faithfulness in processes of consumer-supplier co-production ('productive consumer participation in the service formation and delivery process') (Auh, Bell, McLeod, & Shih, 2007).

- Elevated perceived value of future co-creation, contentment with service revival and aim to co-create value in the future as a result of consumer participation in a self-service service revival process (Dong, Evans, & Zou, 2008).
- Greater commitment and satisfaction are due to the contribution or co-operation with the service giver (Bettencourt, 1997).
- Amplified likelihood of encouraging word-of-mouth with superior levels of consumer contribution in service delivery (File, Judd, & Prince, 1992).

D. Online collaboration: more than just innovation outcomes

Study on the consequence of customer participation in innovation is a not widespread. In addition, organization frequently take the advantageous effect of combined innovation with customers for granted, thereby failing to notice the broader impact that this procedure has on consumer experience. Given that much co-creation with customers happen online, the impact of Virtual Customer Environment (VCE) contribution is a good initial point.

3.1.7 Measuring co-creation impacts

Reviewing the achievement of co-creation policies calls for a multi-dimensional advancment to impact evaluation. Measures can focus either on meso, micro or macro levels of performance, e.g. number of service developments vs the value of the co-creation procedure vs the amount of thoughts generated through co-creation (Humphreys et al, 2009).

Model for measuring

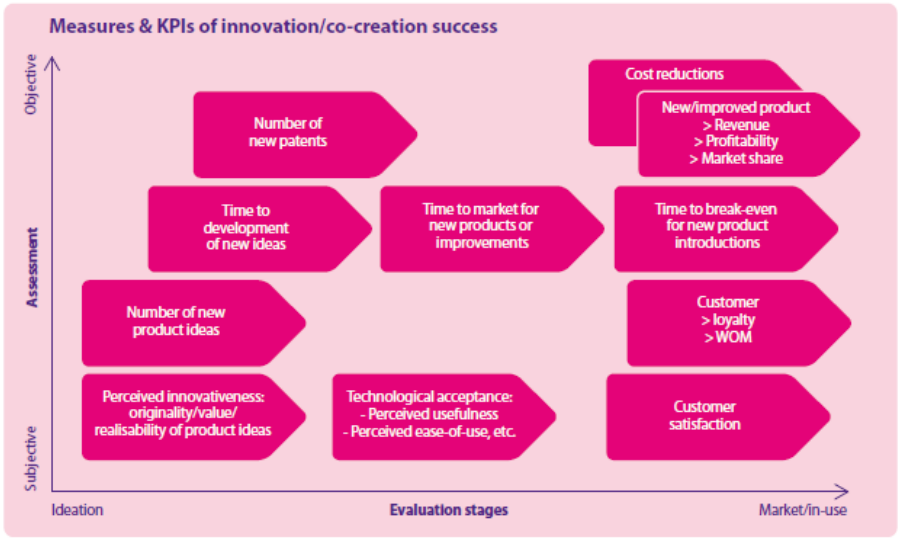
Most companies measure the impact of co-creation trought KPIs that are design only on the “failure or achievement” of produced products. Humphreys et al (2009), developed an measuring model that joins:

- The previously referred advantages connected to improved volume, speed and quality of co-created services and products,
- Previously on in the novelty process, prejudiced measures that comprise ‘innovativeness’ or ‘perceived usefulness’,
- Further down the line an organization's co-creation results may be measured by the amount of triumphant products that have profited from customer enter as disparate to simply in-house N.

Co-made variety can cause to overflow impacts, for example, twist off items or more all inclusive cross-fertilization of item sparks. Once the being used stage is achieved, accomplishment might be

measured through shopper devotion and fulfillment (counting informal) and in addition by means of budgetary pointers, for example, expanded piece of the pie (see figure 25).

Figure 25 - Measures & KPI's of Co-creation innovation



Source: Humphreys et al (2009)

Impacts on the organisation itself

Co-creation achievement can also be assessed from an organisational opinion. Prahalad and Ramaswamy (2004) argue that companies in the co-creation age will have to become ever more flexible while managers skilled in collaboration and negotiation, along with cross-boundary knowledge transfer abilities, will become necessary.

There are common areas we can anticipate to be affected by co-creation:

- Co-creation has a direct effect on conventional innovation processes and practices.
- Co-creation can influence the excellence and speed at which decisions are made relative to the growth and filtering of ideas.
- Co-creation will allow inspiration at group and individual level and potentially allow customer knowledge transfer and development across the company.
- Co-creation will gradually be used as a method of creating policy collaboratively.

Since co-creation might be viewed as an alternate method for performing advancement inside organizations, particularly when specialists interrelate with outer stakeholders, this will likewise have an outcome on how development is accomplished and existed inside the company.as surmised beforehand, co-creation might additionally support shopper recognizable proof with the brand and the items through

dynamic contribution while sharpening administrators towards supporting new contemplations and more participatory administration style to help pushing advancement and imagination at group level.

At an organisational level, consumer participation may ultimately boost overall adaptiveness and flexibility. By boosting up innovation procedures themselves, co-creation has the prospective to systematise and facilitate change through innovation. Finally, co-creation may also craft companies more attractive for workers, like participating in direct value creation (autonomous of their actual work spot) may activate recognition and draw future talent. In order to activate change by innovation co-creation needs to be implemented as raucously as necessary and as non-disruptively as possible.

3.1.8 How to manage co-creation

There are a few questions to believe co-creation, in the wisdom that co-creation stands for creative collaboration procedures between an organisation and its consumers. Depending on the market positioning and size of the company, the ways in which this collaboration takes position may vary. Any organization considering a co-creation strategy requires to consider the following six questions (Humphreys et al, 2009):

A. *Who will be involved?*

The 'locus of co-creation control' – i.e. who has all the authorities– varies for different product development or innovation establishments. Firms may want to involve existing consumers, consumers of competitors (latent consumers) and non-users (dormant users). Some have recommended that certain types of consumers (e.g. early adopters) may be more appropriate for certain types of co-creation objectives, such as breakthrough innovation. However, specific co-creation contexts and purposes are the only reliable gauge of who to involve.

- What's the purpose?

Co-creation raises significant questions about innovation focal point. It may be used to build up a precise solution to a problem or to build a precise product – we would call this idea-driven co-creation. On the other hand, co-creation may not be determined by any purpose at all and experienced simply in order to fabricate new ideas that permit for the opening of entirely new ideas or opportunities. Adding all together, the purpose may be either endlessly to manufacture radically new ones. Finally, a question of consumer value and purpose may be what form of consumer value should be shaped e.g. standardised value (benefiting all consumers), personalized value (e.g. mass customisation of services or goods) or modified value (e.g. as in co-produced services).

- Where does it occur?

One of the mainstay questions of customer involvement is not only for what idea the customer will be involved, but where in the innovation procedure contribution should take place. As sketched previously,

potential consumer participation in the new product development (NPD) scheme have usually included the following five stages:

(1) Idea production and selection;

(2) Design;

(3) Refinement/Testing;

(4) Support;

(5) Commercialization/Marketing.

However, it appears that there are presently very few types of consumer involvement that can cover the whole range of stages in the new product development (NPD) procedure (Dahlsten, 2004). As Dahlsten (Dahlsten, 2004) has described, NPD projects are normally directed by stage-gate models (Cooper, 1993) in which different types of consumer input are required during diverse stages and phases of the innovation process.

- How much involvement?

At an organisational level, customer participation for the objective of co-creation should be as non-disruptive as compulsory while producing maximum benefits and value for both the consumers and the company. The degree to which innovation is open in turn flags issues about lucidity, trust, access and risks happening in combined innovation with consumers. Strong involvement (including customer access to corporate transparency and information) is essential for meaningful open co-innovation. Disclosure has usually become a significant corporate exercise to fabricate trust among customers, On the other hand; transparency and access in the co-creation process has escort to subtle issues about intellectual property: who owns the thoughts and ideas produced when consumers and organisations co-create?

B. *For how long?*

Companies may employ consumers in one-off co-creation workshops, on an ad hoc project-by-project basis, in usual intervals or even incessantly. Simply keeping a channel open for consumer feedback is not enough. As markets are continually co-evolving, regular (and productive) interaction has been recommended as a rational form of customer involvement (Ramaswamy V. , 2008).The length of customer participation can be both a project-based and strategic question. As distinguished by Lundkvist and Yakhlef (Lundkvist & Yakhlef, 2004), major inspiration may be needed to get consumers cognitively mobilized, but may not be able to protect their sustained/ active contribution over a longer period of time. Although, the quality of the interaction may recompense for less interactions and thus keep consumers happy and willing to further involve in the co-creation process.

C. *How do you incentivise?*

Study proposes that intrinsically motivated contributors are best matched for continued creativity and interest, although endurance may also be affected by extrinsic incentives like financial rewards. Future study should examine features of participant selection, motivation and incentives further by focusing on proportions like co-creation objectives (e.g. product type), self-selection, degrees of competitiveness or co-operativeness, customer trust and perception, as well as co-creation settings (see figure 26).

Figure 26 - Four Dimensions Of Participants Motives

	Self-orientation	**Other orientation**
Extrinsic	Materialistic rewards, such as goods, money, etc.	Status, Image, recognition 'showing ideas'
Intrinsic	Enjoyment, learning, Interest, etc.	Belonging to a group, helping others

Source: Humphreys et al (2009)

3.2 Design thinking

There is now a broad consensus and understanding about the role of the designer in today's society. Understanding the changes and social transformations also causes a systematic impact on the designer's functions.

"Everything we have around us – our environments, clothes, furniture, machines, communication systems, even much of our food – has been designed. The qualities of, that design effort therefore profoundly affects our quality life. The ability of designers to produce efficient, effective, imaginative and stimulating designs is therefore important to all of us"(Cross, 2007).

Then it recognizes the designer as an agent in the society. It is also up to the designers, to intervene in the functioning structures of society (services, messages, concepts and actions), particularly in the behavioral context, and integrate the organizations, companies and institutions to enable better outcomes (Brown, 2008; Cross, 2007; Lokwood, 2010, Martin, 2009).

Framing the strategic role of Design

According to Vianna Adler, Lucena and Russo (2012), the word design is often associated with quality and / or aesthetic appearance of products, but as a discipline, aims to promote well-being in people's lives.

To Stefan Sagmeister et al. (2007), design is: "the expression of an idea, process, or system for the betterment of client interests and human locomotion". In other hand Bruce Mau, states that design for him is: "the human capacity to plan and produce desired outcomes".

The designer sees everything as a problem that impairs or prevents the experience (emotional, cognitive, aesthetic) and the well-being in people's lives (considering all aspects of life such as work, leisure, etc.). To identify the real problems and solve them in the best way, the designer knows that it will have to approach them from different perspectives and angles (Vianna et al, 2012). Berger (2009) points out that the design process is geared to break old patterns of thought and behavior.

Now, however, rather than asking designers to make an idea already developed more attractive to consumers, companies are asking them to create new ideas that will best meet the wishes and needs of consumers. The former role is tactical, and resulted in limited value creation; the latter is strategic, and leads to new ways of creating value (Brown, 2008).

As refers Kathryn Best (2012), in the midst of these times of change, and because of this level of familiarity of day-to-day design as an approach can help identify a different way of doing things, turning the everyday life back to what people really value and, finally, back to our own fundamental human values. Thus, design is a process of transformation centered on people, which can move from a traditional mindset, for a transitional and transformational way of seeing things.

3.2.1 Design thinking, in the Design history context

The process of design has been studied since the 1960s, but at that time the design thinking was "related to construction and urban planning" and based himself in presentation of models that could allow them to understand all "the structure of design behavior" (Nagai, Candy & Edmonds 2007). Understanding the designer as a individual inside of his action field and which creativity abilities resulted in innovation are part of the creative thinking process, this only started to have the theorists' attention some years later (Nagai, Candy & Edmonds 2007).

The Design Theory had its main reflective period in the 80's, when the academia had a rupture and the schools started to re-look to the design process. According to the article "A Brief History of Design Thinking: The Theory" in those days the theorists started to wonder about the cognition in the design process, what really leads to creativity and what part of it "relies on intuition and how personal is the process". The research trends in design thinking emerged from a group of theorists that, at that time

started to define new research methods for design process based upon a more empirical approach (Nagai, Candy & Edmonds 2007).

One of them was Nigel Cross, who defended the independence of design from science and from the fine arts, believing that the design process has his own way of thinking, knowing and of doing. The designer was in the center of the process and his knowledge and intuition would be the main key for designing. This is the beginning of the Design Thinking theories and methods (Martins, 2014). Although Nigel Cross has given to the designer the central role in the process of design, he didn't believed that he was an extraordinarily inspired person, but someone that had the ability to have a "analogical thinking and adductive leaps" that build "creative bridges" (Cross 2001).

Another important theorist in those days was Richard Buchanan (Martins, 2014), who described the design thinking as a "liberal art", taking it far away from the science, and making it about knowledge and "contemporary culture. For Buchanan, the design thinking professionals should use the mainstream design culture to solve "wicked problems" (Buchanan 1992). Design thinking and innovation, for Richard Buchanan, are directly connected and this process requires a "multidisciplinary mindset" and the capability to recognize insights that can lead to innovation.

Donald Schön, another relevant research argued that for him design thinking is far away from science, being an independent discipline based on cognition. Schön believed that the most important in the process of design thinking is to define and frame the problem, rather than being focused on solving the problem. This epistemological practice based on the intuition takes, once again, the design thinking to a distinctiveness level (Schon 1983).

Although the concept of design thinking has been established and widely accepted in the scientific community for as long as 25 years, the 'new' movement seems to ignore this approach by ambiguously redefining its core principles. We will discuss briefly two main principles from design history context.

Participatory Design and User Centered design

The participatory design and user centered design principles are vital for the purpose of our research. Since the beginning, the model that we aim to design, experimente and validate have his "heart and soul" in the participation of all stakeholders in the innovation and conceptualization process and it is framed by the vision of having the user in the center of the system.

Participatory design

Participatory design, or cooperative design which it is sometimes called, has had a long tradition in Scandinavia (Schuler & Namioka, 1993; Greenbaum & Kyng, 1991; Bjerknes, Ehn & Kyng, 1987). In the participatory design traditions the involvement of users and building on their activity and participation is a

well develop technique. While its roots in design theory might be traced back to Morris (1891), over Paulsson (1919) and Paulsson (1957), to participatory practices in urban planning of the 60's it earned itself a uniquely important position within systems development and human-computer interaction, and later within interaction design.

Participatory Design started from the simple standpoint that those affected by a design should have a say in the design process. This perspective reflects the then-controversial political conviction that controversy rather than consensus should be expected around an emerging object of design. In this situation, Participatory Design sided with resource-weak stakeholders (typically local trade unions) and developed project strategies for their effective and legitimate participation in design. A less controversial complementary motive for Participatory Design was the potential to ensure that existing skills could be made a resource in the design process. Hence, one might say that two types of values strategically guided Participatory Design. One is the social and rational idea of democracy as a value that leads to considerations of conditions that enable proper and legitimate user participation—what we refer to here as "staging" and "infrastructure" design Things. The other value might be described as the idea affirming the importance of making participants' tacit knowledge come into play in the design process—not just their formal and explicit competencies, but those practical and diverse skills that are fundamental to the making of things as objects or artifacts (Björgvinsson et al, 2012).

User centered Design

The term 'user-centered design' was originated in Donald Norman's research laboratory at the University of California San Diego (UCSD) in the 1980s and became widely used after the publication of a co-authored book entitled: User-Centered System Design: New Perspectives on Human-Computer Interaction (Norman & Draper, 1986). Norman, recognizes the needs and the interests of the user and focuses on the usability of the design. He offers four basic suggestions on how a design should be:

- Make it easy to determine what actions are possible at any moment;
- Make things visible, including the conceptual model of the system, the alternative actions, and the results of actions;
- Make it easy to evaluate the current state of the system;
- Follow natural mappings between intentions and the required actions; between actions and the resulting effect; and between the information that is visible and the interpretation of the system state (Norman, 1988).

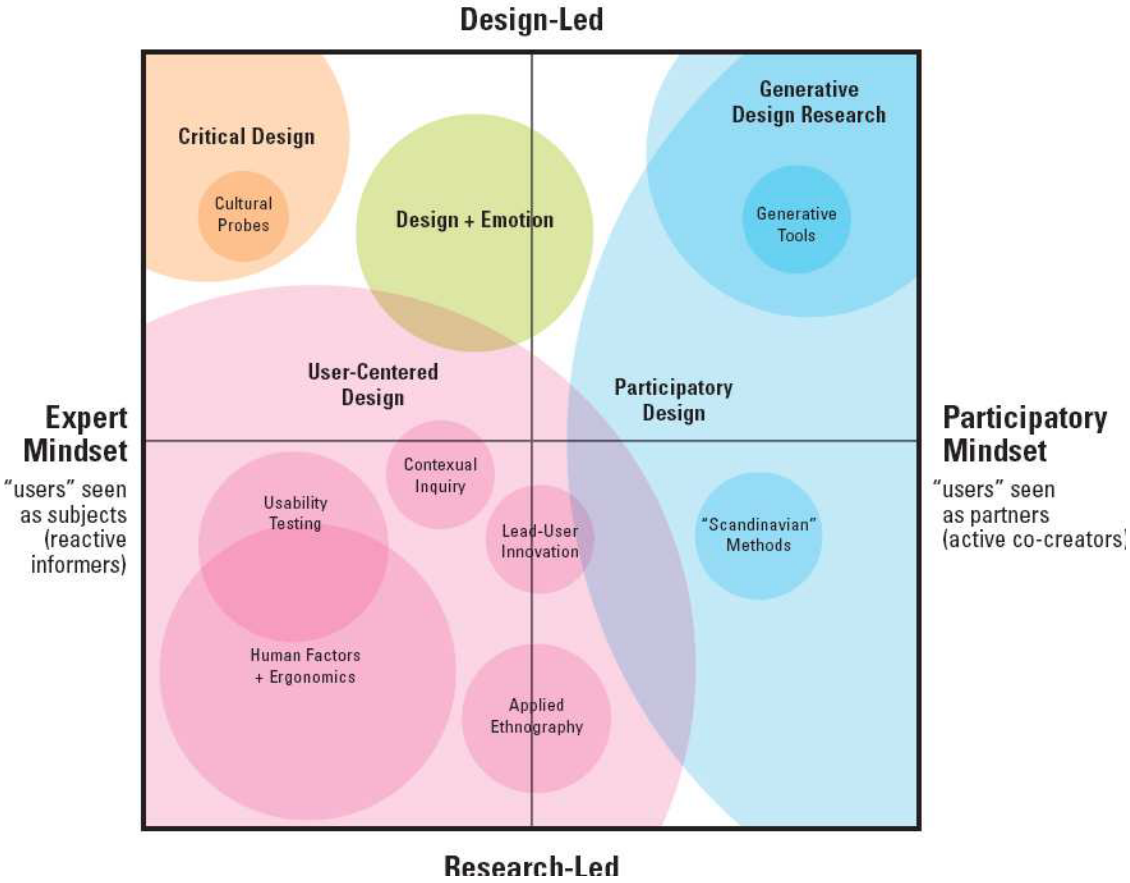
These recommendations place the user at the center of the design. The role of the designer is to facilitate the task for the user and to make sure that the user is able to make use of the product as intended and with a minimum effort to learn how to use it. Norman noted that the long cumbersome, unintelligible

manuals that accompany products are not user-centered. He suggests that the products should be accompanied by a small pamphlet that can be read very quickly and draws on the user's knowledge of the world.

In the following figure 27, Sanders (2008) identifies the human-centred research models most populated, such as User-Centred Design (UCD) and Participatory Design (PD). She explains that the UCD area includes social and behavioral sciences as well as human factors and ergonomics. Two smaller bubbles inhabit the UCD territory, namely: contextual inquiry and lead-user innovation. Sanders (2008) matrix also shows:

- On the right hand side, the Participatory design territory is inhabited by physical artifacts as thinking tools throughout the process, common among the methods issued by the Scandinavian research norms.
- The design and emotion bubble appeared in 1999, said Sanders (2008), as a combination of research-led and design-led approaches to design research.
- Critical design where designers are the experts (instead of the researchers) appeared as an opposite force of UCD. It focuses on cultural probes rather than usability and utility.
- Finally, the generative design bubble appeared to empower people to create and promote alternatives to current situations. Generative tools instill a shared design language used by designers, researchers and stakeholders (users) for communicating visually. This technique suits particularly the Front-End of Innovation in order to feed the process with people ideas, dreams and insights.

Figure 27 - Human-Centred Design research Landscape



Source: Sanders & Stappers (2008)

3.2.2 Design Thinking for innovation effort

A new movement called "design thinking" gains increasing attention across different disciplines. This movement promotes "design thinking" as interdisciplinary and innovative strategy (Badke-Schau, Roozenburg & Cardoso, 2010).

Design thinking for innovation (Brown, 2008; Kelley, 2007 Levy, 2010; Best 2012; Brown & Katz, 2009), Business Design (Martin, 2009), Design-driven innovation (Pisano & Verganti, 2008), are subjects focusing on the role of design in the organizations innovation process and systems that are quite widely published and referenced in the last five years bibliographic reviews.

According to Brown and Katz (2009), Design Thinking interest is to search for a connection between different knowledge's and look's for the proper application to the problem that needs to be solved by exploring concrete integrations and combining theory with practice and by finding new ways of creating and producing. It also takes into account the demand of a focused user himself and actuality it involves him in the solution. It is crucial to understand the different subjects that explore concepts such as society, and individual behavior (Brown, 2009).

"(…) *an approach to innovation that is powerful, effective, and broadly accessible, that can be integrated into all aspects of business and society, and that individuals and teams can use to generate breakthrough ideas that are implemented and that therefore have an impact* (…)" (Brown 2009).

Design thinking refers to the way of thinking of the designer who uses an unconventional type of reasoning in business, the adductive thinking. In this kind of thinking, we try to formulate questions to be answered later, through information collected. Not only are designers who think this way, humans are design-thinkers by nature (Vianna et al., 2012).

Clark and Smith (2008), have a more business perspective, they describe the design thinking as being driven by intelligence focused on innovation and gives organizations the freedom to explore various ways of solving problems, discovering the best option that provides competitive advantage. It's all a matter of intelligence for innovation. It brings a holistic approach to innovation. It consists of multidisciplinary teams (Vianna et al., 2012), composed of elements of the company (eg. Engineering, marketing, etc.) (Brown, 2008) co-creating with the experts of design thinking solutions (Vianna et al., 2012). Thus, incorporates diversity and harnesses different paradigms and each profession set of tools and techniques to: analyze, synthesize, and generate new ideas or insights (Holloway, 2009), and above all, innovative solutions (Vianna et al., 2012). The interdisciplinary nature of design thinking also ensures that innovations are naturally balanced between business, technical and human dimensions (Holloway, 2009).

Brown (2008), stresses three basic premises of the 'new' design thinking approach:

- Design thinking is equally relevant for designing products and spaces, as to the design systems or dealing with abstract problems such as services. This premise is also true for the traditional approach. However, it is important to state that whereas design thinking research has until recently referred mainly to the design of products, whilst neglecting systems and services, both aspects are now gaining more relevance for the customer and thus for the designer.
- The primary goal of design thinking is disruptive innovation to gain competitive advantage on the global market. This statement has been claimed decades ago, and as such it does not provide new insights nor does it point to new behavioral strategies or requirements. In fact, it has already been more than forty years since practitioners in engineering design developed the first methodologies, which aimed at supporting the design process and, consequently, the development of innovative products (see for example Kesselring 1954; Pahl & Beitz 1984). And at the same time, 1952, Alex F. Osborn, the godfather of brainstorming, published the book "Wake up your mind: 101 ways to develop creativeness."

- Design thinking is human-/user-centered, and thus based mainly on non-obtrusive methods such as observation. Brown for instance state.

Design thinking is valuable not just in so-called creative industries or for people tasked with designing products. Rather, it is often most powerful when applied to abstract, multifaceted problems: improving a guest experience at a hotel, encouraging bank customers to save more, or developing a compelling narrative for public-service campaign (Brown, 2008).

Design thinking gets expanding consideration crosswise over distinctive disciplines. This development pushes "design thinking" as an interdisciplinary and creative methodology (Badke-Schau, Roozenburg & Cardoso, 2010). IDEO Design and the D-School at Stanford University developed the nuclear methodology that supports all this line of research. In literature is designed as “design thinking movement” (Badke-Schau, Roozenburg & Cardoso, 2010). It is conceived on the intersection of three major areas of Knowledge: People (desirability), Business (viability) and Technology (feasibility) has as its founding principles of: Human Centered Design, radical collaboration, multidisciplinary, a mentality of "Makers" and experimentation (Kelley, 2005; Brown, 2008). The Design thinking approach has been implemented in different contexts, namely corporate and business contexts (Brown 2009, Martin, 2009; Berger, 2009; Mateus et al., 2010, Mateus et all, 2011), and more recently in the context of social innovation (Manzini, 2013; Mateus et all, 2013, Shea, 2012; Ricketts, 2012).

How implement Design thinking for innovation

Design and design thinking are not tasks only for designers but an inherent requirement for business and management leaders: “Design is now too important to be left to designers” (Brown, 2009).

Further explanations of how design thinking as business strategy can conquer the world are given by Martin (2009) in his book on “The Design of Business: Why Design Thinking is the Next Competitive Advantage”.

Design thinking is the form of thought that enables movement along the knowledge funnel, and the firms that master it will gain an inexhaustible, long-term business advantage. The advantage, which emerges from the design-thinking firms’ unwavering focus on the creative design of systems, will eventually extend to the wider world. From these firms will emerge the breakthroughs that move the world forward, because design-thinking firms stand apart in their willingness to engage in the task of continuously redesigning their business (Martin, 2009).

Brown (2009) proposes the following steps to implement Design thinking for innovation:

- **Begin at the beginning** - Involve design thinkers at the very start of the innovation process, before any direction has been set. Design thinking will help you explore more ideas more quickly than you could otherwise.
- **Take a human-centered approach** - Along with business and technology considerations, innovation should factor in human behavior, needs, and preferences. Human-centered design thinking—especially when it includes research based on direct observation—will capture unexpected insights and produce innovation that more precisely reflects what consumers want.
- **Try early and often** - Create an expectation of rapid experimentation and prototyping. Encourage teams to create a prototype in the first week of a project. Measure progress with a metric such as average time to first proto prototype or number of consumers exposed to prototypes during the life of a program.
- **Seek outside help** - Expand the innovation ecosystem by looking for opportunities to co create with customers and consumers. Exploit Web 2.0 networks to enlarge the effective scale of your innovation team.
- **Blend big and small projects** - Manage a portfolio of innovation that stretches from shorter-term incremental ideas to longer-term revolutionary ones. Expect business units to drive and fund incremental innovation, but be willing to initiate revolutionary innovation from the top.
- **Budget to the pace of innovation** - Design thinking happens quickly, yet the route to market can be unpredictable. Don't constrain the pace at which you can innovate by relying on cumbersome budgeting cycles. Be prepared to rethink your funding approach as projects proceed and teams learn more about opportunities.
- **Find talent any way you can** - Look to hire from interdisciplinary programs like the new Institute of Design at Stanford and progressive business schools like Rotman, in Toronto. People with more-conventional design backgrounds can push solutions far beyond your expectations. You may even be able to train no designers with the right attributes to excel in design-thinking roles.
- **Design for the cycle** - In many businesses people move every 12 to 18 months. But design projects may take longer than that to get from day one through implementation. Plan assignments so that design thinkers go from inspiration to ideation to implementation. Experiencing the full cycle builds better judgment and creates great long-term benefits for the organization.

3.2.3 The Design Thinking Process

Clark and Smith (2008), design thinking also encompasses various types of intelligence related to innovation. Cultivating these will help to increase and a broader use of this approach to design by many other professions:

- **Emotional intelligence** - the ability to understand and embrace the context of the culture that leads us to act and that creates attachment, commitment and conviction;
- **The full intelligence** - the ability to meet diverse customer needs and capacities of business ecosystems in complete systems that add value and reflect the values organization birth;
- **Experiential intelligence** - the ability to understand and activate the five human senses to make innovation, tangible, known and vibrant.

The analytical approach to the Design Thinking can help prepare the conditions for innovation to happen and help make it viable in the new market. The best insight should be generated by the three contact forces: Capacity, Organization and Consumer / Society. The best result comes from the ability to integrate these three variables, namely the creation of an innovative solution that crosses each of these areas or variables.

Warren Berger (2009) points out that, in addition to rethink the product offering, companies can apply design to the way they serve customers, long after the sale, and the overall form of doing business. The whole experience can and should be designed in a holistic manner.

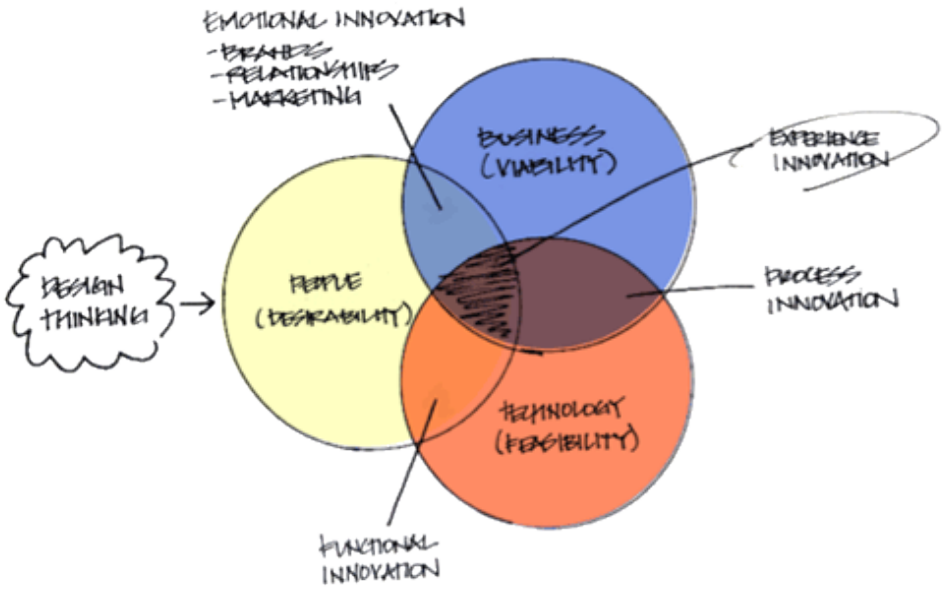
According to Karen Gorsline (2010) "Design thinking may well represent the next competitive advantage".

Concept

The main concept regarding IDEO Design and Stanford D.School vision of Design Thinking (see figure 28) is the crossing of tree main variables. Design thinking relates to the discovery of important constraints given context, establishing thus an analytical framework to evaluate them. These constraints can be addressed from the concepts / variables:

- Desirability: what makes sense to people?
- Feasibility: what is functionally possible in the foreseeable future?
- Viability: what is likely to become part of a model sustainable business?

Figure 28 - Design Thinking Concept – IDEO



Source: Kelley (2007)

Process

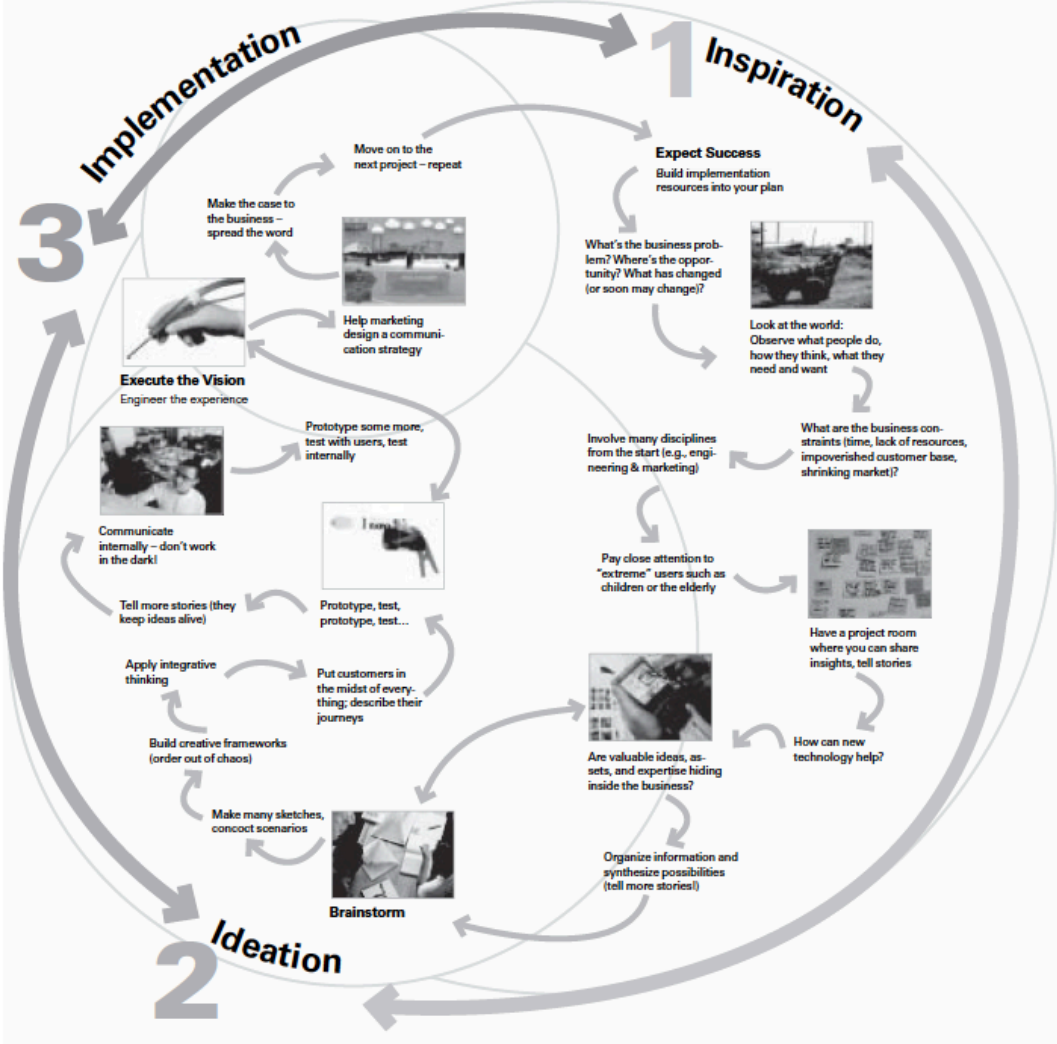
According to Brown (2009), the Design thinking process consists of three major stages: Inspiration, Ideation and Implementation. The process is built upon five phases: empathize, define, ideate, prototype, and test.

The IDEO design thinking process is best thought of as a system of overlapping spaces rather than a sequence of orderly stages. There are three spaces to keep in mind:

- Inspiration - is the problem or opportunity that motivates the search for solutions.
- Ideation - is the process of generating, developing, and testing ideas.
- Implementation - is the path that leads from the project stage into people's lives.

Projects will loop back through these spaces (see figure 29), particularly the first two more than once as ideas are refined and new directions taken (Brown, 2009).

Figure 29 - IDEO - Design Thinking 3 Stages



Source: Brown (2008)

Design thinking principles

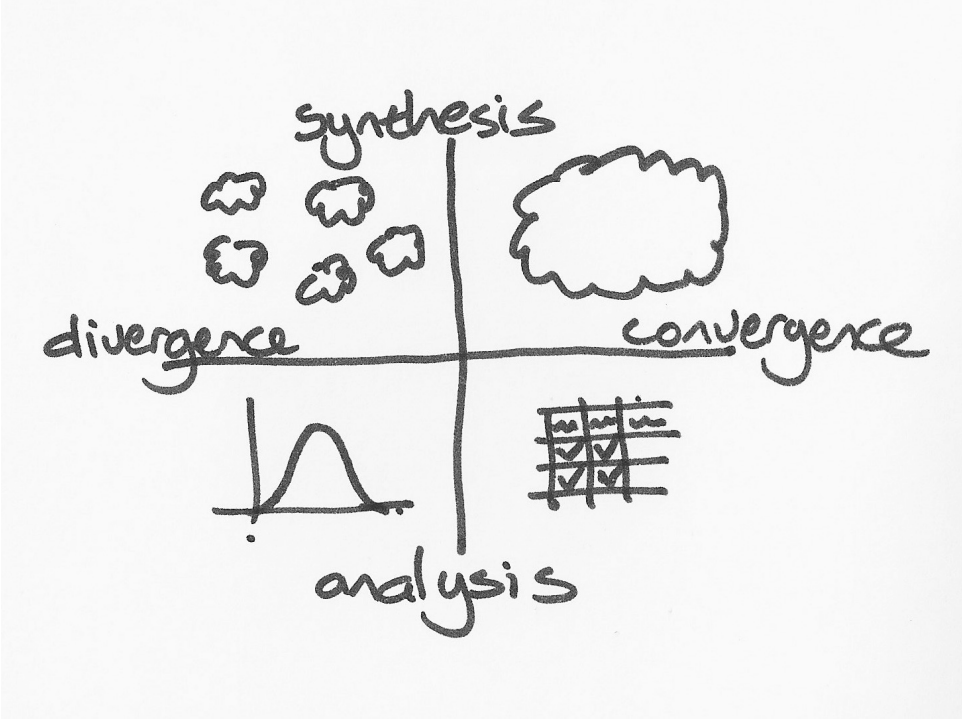
IDEO design and D-Scool Process phases (Brown, 2008):

- **Empathize:** Work to fully understand the experience of the user for whom you are designing. Do this through observation, interaction, and immersing yourself in their experiences.
- **Define:** Process and synthesize the findings from your empathy work in order to form a user point of view that you will address with your design.
- **Ideate:** Explore a wide variety of possible solutions through generating a large quantity of diverse possible solutions, allowing you to step beyond the obvious and explore a range of ideas.
- **Prototype:** Transform your ideas into a physical form so that you can experience and interact with them and, in the process, learn and develop more empathy.

- **Test:** Try out high-resolution products and use observations and feedback to refine prototypes, learning more about the user, and refining your original point of view.

On the foundations of its system are the creative fundamentals: divergence, synthesis, convergence and analysis for seeking creative solutions for problem-solving challenges, as shown in figure bellow (see figure 30).

Figure 30 - D.School and IDEO Design thinking Fundamentals



Source: Brown (2008)

Brown (2009) points out that the importance of Design Thinking also results in a divergent application for the exploration of new alternatives, solutions and ideas that did not exist before approach.

In a common case, when you are looking for a solution, it is usual to arise a number of insights that are analyzed and subsequently converge in a hypothesis solutions. The option passes, often by choice within several alternatives, converging in one direction and always seeking a single end result.

When talking about the Design Thinking process is broader in that there is alternation between convergent and divergent thinking. If during convergent thinking, do not create the satisfactory responses, it creates new possibilities, the choices multiply and emerge new and broad sets of possibilities until they finally reach a more concrete solution.

The Design Thinking can thus be considered a rhythmic game between the divergent and convergent phase, triggering a sequence with broader levels of interaction and detailed than previous approaches.

Cropley (2006) states that these two rational mechanisms maintain a paradoxical relationship with key processes for the implementation of creativity. The divergent phase is characterized as a process of generating ideas in quantity and complexity, the exploration and discovery of problems, the branching linkages to the outside and thus creating unexpected connections. The convergent phase, in turn, is defined as a critical and careful logic skill assessment. It's focused on meeting the best and most correct answer, from a strictly logical and precise knowledge.

Also according to Brown (2009) Design Thinking emerges control and relationship of these two types of thought.

The Analysis and Synthesis are complementary and natural consequences related to the process of convergent and divergent thinking and develop an important role in the creation and selection of choices. According to Brown (2009), the synthesis - the act of extracting meanings of patterns masses - is fundamentally a creative process, which considers that the data - either technical or behavioral - is just data and not mean anything by itself. This action is organized, plays up and drives on any information based on analytical data in a credible narrative.

Although there no algorithm that shows how to transform the converging or diverging possibilities in the passage of the details of analysis on synthetic, is to stress the importance of setting up timings for the advance or retreat of these same phases.

In the paradigm of Design Thinking is visible not only a continuous movement between the convergent and divergent process, as well as between synthetic and analytic.

As a methodology, Design Thinking serves up some principles that guarantee the creation of a more conscious and safe for the development of innovative solutions environment. These are based, essentially, on a plural and heterogeneous culture and promote team spirit and the atmosphere of experimentation as central to fostering the creation of quality factors, the main principles are: Radical collaboration, Co-creation, Multidisciplinary, Experimentation, “Build to Think” (we are all Makers).

The Design Thinking, according Neumeier (2010) appears as the tool that enables innovation, since it refuses to think about old solution or easy answer. Differs from other activities not only for their results but, even more, by its process, it tends to ramble on disparity. The innovative result is dependent not only the application of a creative but also a methodology focused effort in this same process, making the creative act to generate ideas, concepts, services, environments and modes of interaction that did not exist before.

Neumeier (2010) citing Herbert Simon defines Design Thinking as a practice that aims to independent innovation as a result of the person who generates "a designer is someone who develops ways of changing existing situations into something better." This view becomes interesting, in that it sees design as an activity that can be verified by anyone. The genesis of the designer lies in the process itself.

The need for transformation is, if anything, greater now than ever before. No matter where we look, we see problems that can be solved only through innovation: unaffordable or unavailable health care, billions of people trying to live on just a few dollars a day, energy usage that outpaces the planet's ability to support it, education systems that fail many students, companies whose traditional markets are disrupted by new technologies or demographic shifts. These problems all have people at their heart. They require a human-centered, creative, iterative, and practical approach to finding the best ideas and ultimate solutions. Design thinking is just such an approach to innovation (Brown, 2009).

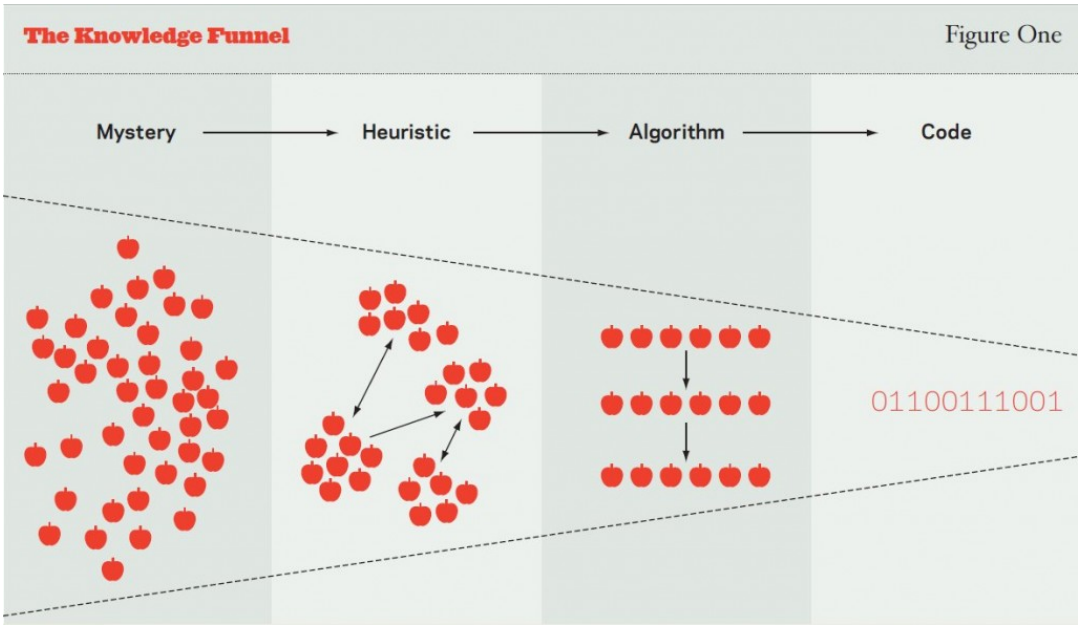
3.2.4 Business Design

Martin (2009) argues that innovation always begins with a mystery. This, in turn, becomes a heuristic - phase of problem solving - which subsequently develops and becomes an algorithm - the formula associated with the solution.

Nowadays, power up will also consider a fourth time in this sequence, because some algorithms may also be encoded by software, for example, it means to reduce them to a number of figures, where there is no kind of value judgment involved.

Sequence in mystery - heuristics - algorithm - code there has been a sequential progress in investment value creation (see figure 31).

Figure 31 - The Knowledge Funnel



Source: Martin (2009)

Thinking Styles

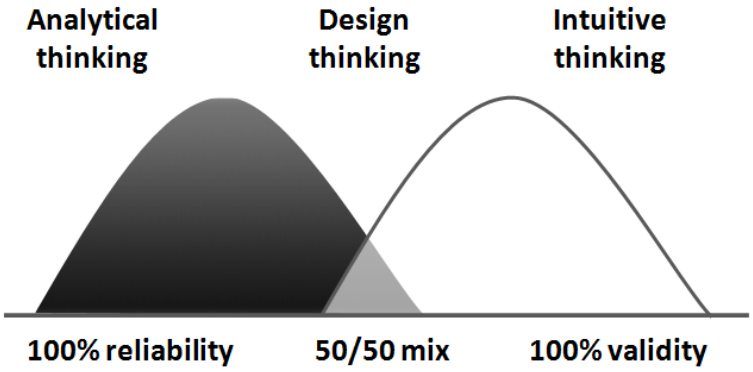
According to this, Martin (2009) indentify that there are two styles of thinking:

- **Reliability Thinking-** is analytical, deductive and inductive run on logic and depends on consistent and replicable data. This thought is limited to refining existing ideas and does not advocate the path for innovation because he constantly requires evidence. As such, and as stated by Martin (2007), it becomes more complicated to create an atmosphere for the emergence of new ideas. With this kind of thinking is not feasible exercise for heuristic since it is the result of a process that aims to produce a reliable, consistent and replicable results.
- **Validity Thinking** – that works based on intuition. Part of the data set, and it works in imagined or expect solutions. It is the result of a process that produces a desired outcome and has as principle adductive logic. Martin (2007), argues that the reasoning of Design Thinking produces essentially a greater breadth of knowledge oriented validity. Validity can be demonstrated only by future events.

Martin (2007) divides these two types of thought making a direct analogy between two distinct areas: the World of Business and the World of Designers.

As can be seen by the curves of the graph (see figure 32), the ideal thought is precisely the intersection of these two mental exercises.

Figure 32 - Martin's Thinking Styles



Source: Martin (2009)

In reality, it is possible to be seen that most managers are trained to methodologies that produce reliability. Use analytical tools, linear course, because these help to implement the trust and to ensure past results. For these people, what happens in the past also in the future. Are interested, so by producing consistent and predictable results (Martin, 2007). Words such as Evidence, Analysis, and Implementation Best Practices are common in the lexicon of these professionals.

The search for a creative solution should consider the tensions between two or more initial choices. The theory of Martin (2008) thus argues that thinkers who build opposing ideas to build new solutions, generate an advantage to those who consider only one model at a time. For the author, the resistance "or" in favor of "and" directs to new non-linear and multi-directional ideas that might be sources of inspiration and not a contradiction.

This assumption is in line with the line of thought of the exploratory own Design Thinking, in that it is not contemplated only one way of thinking or a unique way to solve a case.

As Martin (2008) also Brown (2009) believes that to achieve innovation, it is necessary to choose a system of interaction rather than an ordered sequence of spaces or ideas. All new discoveries that are integrated or combine, somehow create rupture. In this sense, and as stated by Brown (2009), Design Thinking explores new forms and possibilities, meaning thereby that elects the connection of ideas at the expense of linearity of thought processes.

Martin (2008) further argues that the complexity can be a starting point for innovation or for the emergence of creative solutions, making it an indispensable set of methods to organize and manage the chaos. The author calls this methodology as Integrative Thinking.

3.2.5 The rise of Design Thinking critics

Design Thinking was the buzzword of the day and the ultimate solution for a innovative organization and business. It promised to take think outside the box, giving shape to ideas, taking the path less

travelled, and approach the thought process with an open mind and as a blank canvas (Guellerin 2013). Instead, as Guellerin (2013) advocates, Design Thinking put himself inside of a box by the endeavors to create a closed definition of Design Thinking and a sealed methodology to the creative process. For Guellerin (2013), Design Thinking has failed because putting itself in the center of innovation process inside the companies can't continue on being an intuitive and speculative process or a poacher on marketing strategies.

Recently, we observed the rise of critics regarding design thinking, at least in the more commercial format presented by IDEO DESIGN and D.SCHOOL (Norman, 2010; Nussbaum, 2011; Walters, 2010; Gaullerin, 2013; Cross, 2012). To Bruce Nussbaum: "the Design Thinking had his days, now instead of bringing huge benefits to the society and to the design process became a rock in the way that is really stopping the evolution of the design"(Nussbaum 2011).

Design thinking, according to Nussbaum, was limited by being "turned into a linear, gated, by-the-book methodology that delivered, at best, incremental change and innovation" (despite the fact that he does recognize the jumps made by design thinking in connection to design essentially, and to frameworks and public —humanistic design and social development, for instance). As a "process trick," design thinking may have "under-conveyed in proficiency headed business motivation" for advancement and change (Nussbaum, 2011).

In his column "Design Thinking: A Useful Myth?" Don Norman (2010) calls this 'new' approach a myth which "is nonsense, but like all myths, it has a certain ring of plausibility although lacking any evidence." The broad acceptance of this notion of design thinking, especially in industry, seems to stem from its fashionable format and the 'hero'-function ascribed to the designer. However, the emerging breadth of the construct has led to a dilution of the concept. Badke-Schau, Roozenburg and Cardoso (2010), stated:

"*Although some of the proposed suggestions may be convincing in terms of 'grandmother's wisdom', the approach does not put forward any kind of empirical investigation or evaluation of the premises. There is no intention to better understand the underlying cognitive processes that the traditional design thinking approach stands for. Consequently, without any consensual conceptualization and operationalization of what constituents the approach consists of, the scientific value of the concept of design thinking is meaningless*".

According to Badke-Schau, Roozenburg and Cardoso (2010), the design thinking approaches lack of scientific development and research validation gap. The critical view on design thinking, addressing two different paths: (a) the limitations of the traditional design thinking, research as well as the contributions of the new approach, often referred to as design thinking movement. The conventional design intuition approach (Cross, 1992; Cross, 1996; Dorst, 2009; Visser 2006) has, then, created a wide

research history but need to adapt to its divided assortment of exact results, because of an absence of hypothetical combination (Badke-Schau, Roozenburg & Cardoso, 2010); the new view on configuration thinking as an administration method (Brown, 2009, Martin 2009, Lockwood, 2009, Verganti, 2009) is not grounded on experimental studies or assessments and experiences an eager and excessively general idea (Mateus et all, 2009; Mateus et all, 2010). Both approaches could gain from each other in different ways.

There is a long list of success cases in Design Thinking, but the most of them were focused on individual departments of multinational companies or outsized companies. Thereby the innovative process was made in a small scale and wasn't applied to all the company departments in a multidimensional way that would bring really innovation to the company and to all the teams (Martins, 2014). Due to this issue there are some questions that can raised regarding the implementation of a Design Thinking process inside an institution: Who will be the responsible person inside? Who really places the work process in movement? And how it could be replicated in all the departments? How to replicate the process and the philosophy inside of organizations? How to obtain real engagement and motivation from the co-workers? How to define metrics and measures for the Design thinking process? How measures the real value of the achievements? (Walters 2011).

3.2.6 Evolutional Design

In his latest paper " From Blueprint to Genetic Code: The Merits of an Evolutionary Approach to Design", Tim Brown talks about changing from "Newton's world" where design seeks prediction and a complete system, to Darwin approach "who encouraged us to think about constant evolution, emergent change"(Brown, 2012). Brown claims a more anthropological process, where the designer should:

- We should give up on the idea of designing objects and think instead about designing behaviors - Behaviors are about the interrelationships between people and the objects that exist in the world around us.
- We need to think more about how information flows - a key characteristic of a complex system is that the more complex a system is, the more information flows through it. If this is true, then we ought to be thinking more about these information flows when we are designing complex systems. In fact, before we work on designing a better solution, we need to get better at understanding the complex system as it is today, and what information is already flowing through it.
- We must recognize that faster evolution is based on faster iteration - The faster we do things, the faster we learn and the faster we improve.
- We must embrace selective emergence - So far, natural biologic systems appear to be way ahead of us in dealing with complexity, but we do have one advantage over them:

with biological systems, all of the improvements are random they are based on mutation. There are some guiding principles perhaps, but there is no guiding intelligence. We humans have the benefit of potentially using the best of both when we design something.

- We need to focus on fitness - Biological systems naturally focus on fitness; at its core, that's what evolution is all about – striving for fitness, whatever the environmental context might be. All kinds of biological systems do this; but what is the equivalent of fitness in business and in design? I believe one way of thinking about fitness in the organizational realm is the concept of purpose. Organizations that have a clear purpose tend to be able to design in a less top-down way.
- We must accept the fact that design is never done. - In the architectural world, there is a notion of 'life after the open house.' Architects see all sorts of perfect photographs of buildings just at the moment when they hand it over to the client, but very rarely does anyone see photographs of what happens afterwards. To Brown (2012) "I think this is natural, and I do the same thing: I design a product and I take a perfect picture of it, before the manufacturers get their hands on it, never mind the user. This is that moment when the 'thing' is closest to my vision, and it's when I think I'm done with it. Of course, this is a ridiculous notion, because in truth, it is now in the hands of users, where it will be adapted and used for things that I didn't expect it to be used for".

Evolution doesn't mean perfection, but change and ability to adapt, Design is changing and adapting to new models, that are more open and lays on the human centered approach (Yagou, 2012). Also Brown (2012), talks about openness to the world where design works in a participative and open way. Reviewing the explanations for the evolution of Darwin, where the function adapts to the Nature, the product is also constantly repeated and suffer changes over time, influenced by a process of continuous and cumulative design, as well as collective. "Good designs are not ideal forms, but expressions of ideas which have evolved through adaption processes, to fit particular social, economic, and technological context" (Yagou, 2012). Based on this premise, Artemis (2012) advocates the idea that the product design can be regarded as cultural memes, for its ability to replicate and propagate ideas through imitation, modification and competition.

3.2.7 Crossing Design thinking, Management and Innovation

In 2011, Bruce Nussbaum a standout amongst the most vital promoter of inventiveness, idea, and innovation, proceeded onward from the idea of "design thinking" to another calculated system called "creative intelligence/creative quotient" (CI/CQ), the ability to frame problems in new ways to make original solutions.

Swan (2012) writing at Forbes magazine, bids us to "welcome to the era of design," and invites chief marketing officers to see design not just as a "marketing thing," but as a "genuine source of competitive advantage, customer and employee satisfaction, and a route to higher profits.

This two visions lead Best (2012) to ask a relevant a question: Are we perhaps leaving the era of design thinking and (re)entering the era of design? Can we (re)assimilate the social and economic power of design—in effect, go back to where it all started—or can we take design in a new direction? Here are some thoughts on the changing world we live in and the opportunities for design therein (Best, 2012).

As we have seen in the first chapter, Innovation is incredibly important to all organizations today—not only as a source of revenue and growth, but also as a source of reinvention and as a way to survive and thrive amid challenging economic times. These interesting times in which we live have been triggered by significant changes in societal, technological, economic, environmental, and political conditions that are forcing "business as usual" to change (Kotter, 2010). The institutions and infrastructures that are built on old-world industrial economic models and structures are adapting, evolving, or not surviving (Best, 2012).

The alternative organizational systems and processes emerging give us some clues as to where we are going and what things will look like in the future. They tend to be based around ideas of an increased sense of community and responsibility towards the environment and society (Porter, 2012); an increased demand for more transparency and active participation in politics and the economy; and an increased familiarity with the use of the technological tools that enable people to connect, share, collaborate, and communicate in new ways—and to have their voices heard. Governmental initiatives around these changes include ways to stimulate a more decentralized and proactive form of citizenship (Mintzberg, 2011) to grow a culture of business and social enterprise (for example, SMEs and "social" businesses); and to embed an entrepreneurial "start-up" mindset that encourages initiative, risk-taking, and responsibility.

The current growth areas in our rapidly changing economy are described in a range of different ways, for example:

- The "creative economy" as being based on the growing power of ideas—and how people make money from ideas—is driven by the view that "twenty-first-century industries will depend increasingly on the generation of knowledge through creativity and innovation" (Howkins, 2012).
- The idea of the "green economy," described by UNEP (United Nations Environmental Protection) as "one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities." The World Resource Institute describes it as "an alternative vision for growth and development—

> one that can generate growth and improvements in people's lives in ways consistent with sustainable development" (Best, 2012).

The challenges we face, which are bringing about shifts in power, are starting to bring out the entrepreneur (i.e., someone who shows initiative and takes a risk) in many. For others, change is difficult. People's response to change depends on their levels of comfort with risk and their levels of motivation toward improving their quality of life. Peter Drucker's "paradigm of change" model is a very useful way to think through the challenges of change, the dangers of doing nothing and the opportunities in taking, if necessary, a courageous leap into a completely new way of doing things.

According Flaherty (1999), adapting the classical paradigm of change model of Peter Drucker, designers most thinking about:

- The past: What is the business? This is its "traditional" state of existence.
- The present: What will the business be? This is its "transitional" state of existence.
- The future: What should the business be? This is its "transformational" state of existence.

With the current changes in the world, it is possible that we are entering a completely new paradigm of change in how we do things; in how we conduct business, and in how we live our lives. Whether in the face of systemic, organizational, or lifestyle changes, framing our decision-making processes around the idea of past, present, and future states of existence provides a new way to think about things.

It also allows us to identify opportunities for design and explore how design could respond to these different dimensions.

As one of the creative industries, design is one of the disciplines that recognize the growing power of ideas.

As a people-centered, problem-solving process, design became fashionable as a way to address challenges facing both public and private organizations. By putting people at the core of how products, services, and systems are designed, design as a methodology was positioned as a way to bring fresh thinking to current debates about whether to restore, redefine, or redesign existing systems—systems that ultimately define people's daily interactions and influence the quality of their life experience.

"Design is one approach of inquiry and action among many used by humans to engage with the world," says Stolterman (2011). But it is an incredibly familiar, and therefore very useful, approach. We are literally surrounded by design in the culture of everyday life and in the communities, objects, spaces, and systems we come into contact with every day. Amid the current times of change, and because of this level of day-to-day familiarity, design as an approach can help identify a different, or better, way of doing things, of reconnecting everyday life back to what people really value and, ultimately, back to our own core human values.

In this way, design is a people-centered transformational process, one that can move mindsets from a traditional, to a transitional, to a transformational way of seeing things. This can be done through envisioning and communicating in a very human way how our needs, aspirations, decisions, and behaviors will affect the look and feel of "the future" (through "day-in-the-life-of" scenario planning, for example), and by engaging and empowering stakeholders in the process of change via the very tools and processes used to design and visualize alternative futures.

The links among design, creativity, and innovation were framed in the Cox (2009) review, which envisions securing the place of design in future debates on creativity and innovation:

- Creativity is the generation of new ideas—either a new way of looking at existing problems or the discovery of new opportunities.
- Innovation is the exploitation of new ideas.
- Design is what links creativity and innovation—it shapes the ideas so they become practical and attractive propositions for users and customers.

It is design's ability to present attractive, practical, and aspirational propositions that can help change people's decision-making processes, behaviors, and mindsets. The application of a "designedly" way of thinking and communicating could be very timely now in stimulating both new value propositions and more human-centered strategies for growth and development—all within our rapidly changing, increasingly sustainable, post-consumerist society. What will these new propositions (practical, attractive, and aspirational) that can step-change people's behavior and mindsets about success and "what matters" and move us into alternative lifestyles (based on well-being), actually look and feel like? To Best (2012) is an opportunity for design —to reframe and shift things "by design." Nussbaum rightly points to the importance of the ability to reframe problems in new ways to make original solutions. But what we use to reframe things (CI/CQ, creativity, design, or design management) is not what really matters. What matters is that we are reframing things. It is the very act of reframing itself that is important. In short, Design it is about the process, the meaning and the purpose.

3.3 Marketing window

According to Toffler (2006), human civilization can be divided into three waves of the economy. The first wave is the Agriculture Age, in which the most important capital is the land for agriculture. The second is the Industrial Age following the Industrial Revolution in England and the rest of Europe. The essential kinds of capital in this age are machines and the factory. The third era is the Information Age, where mind, information, and high tech are the imperative types of capital to succeed. Today, as humanity

embraces the challenge of global warming, we are moving toward the fourth wave, which is oriented to creativity, culture, heritage, and the environment.

Marketing is also moving toward the same direction. Marketing 3.0 relies heavily on the marketers' ability to sense human anxieties and desires, which are rooted in creativity, culture, heritage, and the environment.

Marketing 3.0

Over the years, marketing has evolved through three stages that we call Marketing 1.0, 2.0, and 3.0. Many of today's marketers still practice Marketing 1.0, some practice Marketing 2.0, and a few are moving into Marketing 3.0 (Kotler et al, 2010).

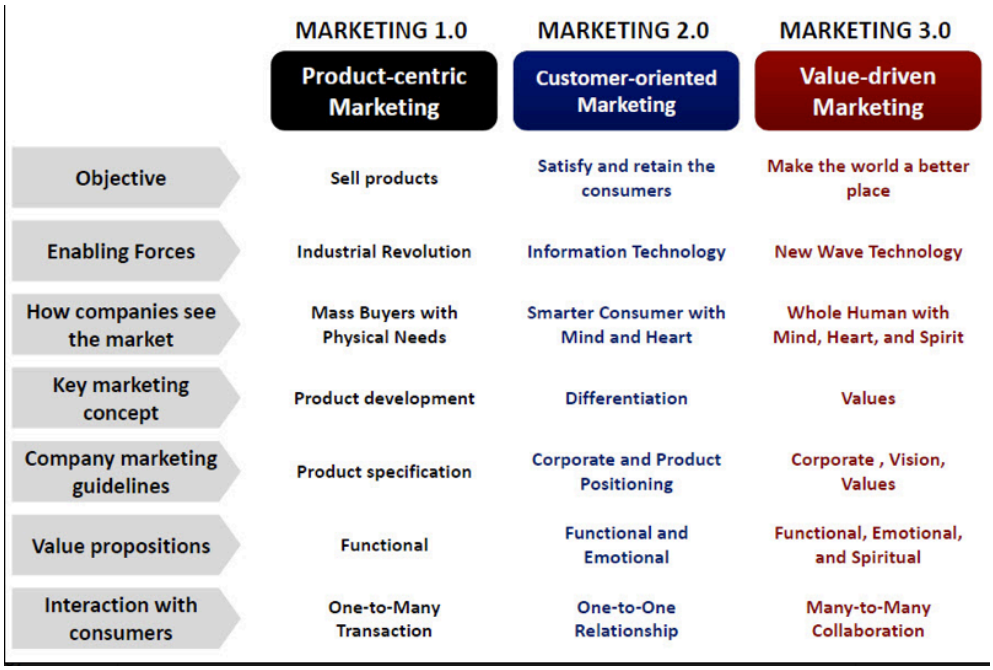
According to Kotler et al (2010), the initial stages can be summarize as:

- **Marketing 1.0 or the product-centric era** - Long ago, during the industrial age—when the core technology was industrial machinery—marketing was about selling the factory's output of products to all who would buy them. The products were fairly basic and were designed to serve a mass market. The goal was to standardize and scale up to bring about the lowest possible costs of production so that these goods could be priced lower and made more affordable to more buyers. Henry Ford's Model T automobile epitomized this strategy; said Ford: "Any customer can have a car painted any color that he wants so long as it is black."
- **Marketing 2.0 or the customer-oriented era** - came out in today's information age—where the core is information technology. The job of marketing is no longer that simple. Today's consumers are well informed and can easily compare several similar product offerings. The consumer defines the product value. Consumers differ greatly in their preferences. The marketer must segment the market and develop a superior product for a specific target market. The golden rule of "customer is king" works well for most companies. Consumers are better off because their needs and wants are well addressed. They can choose from a wide range of functional characteristics and alternatives. Today's marketers try to touch the consumer's mind and heart.

Now, we are witnessing the rise of Marketing 3.0 (see figure 33) or the values-driven era. Instead of treating people simply as consumers, marketers approach them as whole human beings with minds, hearts, and spirits. Increasingly, consumers are looking for solutions to their anxieties about making the globalized world a better place. In a world full of confusion, they search for companies that address there deepest needs for social, economic, and environmental justice in their mission, vision, and values. They

look for not only functional and emotional fulfillment but also human spirit fulfillment in the products and services they choose.

Figure 33 - From Marketing 1.0 to Marketing 3.0



Source: Kotler et al (2010)

Three major forces for marketing 3.0

There are three major forces that shape the business landscape toward Marketing 3.0 (see figure 34), the age of participation, the age of globalization paradox, and the age of creative society (Kotler et al, 2010). These three major forces transform consumers to be more collaborative, cultural, and human spirit-driven. Understanding this transformation will lead to a better understanding of Marketing 3.0 as a nexus of collaborative, cultural, and spiritual marketing:

- **The age of participation and collaborative marketing** - Technological advances have brought about huge changes in consumers, markets, and marketing over the past century. Since early 2000, information technology has penetrated the mainstream market and further developed into what is considered the new wave technology. New wave technology is technology that enables connectivity and interactivity of individuals and groups. New wave technology consists of three major forces: cheap computers and mobile phones, low-cost Internet, and open source. The technology allows individuals to express themselves and collaborate with others. New wave technology enables people to turn from being consumers into prosumers. One of the enablers of new wave technology is the rise of social media. We classify social media in two broad categories.

> One is the expressive social media, which includes blogs, Twitter, YouTube, Facebook, photo sharing sites like Flickr, and other social networking sites. The other category is the collaborative media, which includes sites such as Wikipedia, Rotten Tomatoes, Craigslist and Innocentive. The growing trend toward collaborative consumers has affected business. Marketers today no longer have full control over their brands because they are now competing with the collective power of consumers. Companies must now collaborate with their consumers. Collaboration begins when marketing managers listen to the consumers' voices to understand their minds and capture market insights. A more advanced collaboration takes place when consumers themselves play the key role in creating value through co-creation of products and services (Kotler et al, 2010).

(…)"*Collaborative marketing* is the first building block of Marketing 3.0. Companies practicing Marketing 3.0 aim to change the world. They cannot do it alone. In the interlinked economy, they must collaborate with one another, with their shareholders, with their channel partners, with their employees, and with their consumers. Marketing 3.0 is a collaboration of business entities with similar sets of values and desires".(…) (Kotler et al, 2010):

- **The age of globalization paradox and cultural marketing** - Besides the impact of technology on shaping new consumer attitudes toward Marketing 3.0, another major force has been globalization. Globalization is driven by technology. Information technology enables the exchange of information among nations, corporations, and individuals around the world, while transportation technology facilitates trade and other physical exchange in global value chains. Like technology, globalization reaches everyone around the world and creates an interlinked economy. But unlike technology, globalization is a force that stimulates counterbalance. In search of the right balance, globalization often creates paradoxes. A major effect of these paradoxes of globalization is that companies are now competing to be seen as providing continuity, connection, and direction. According to Holt, cultural brands aim to resolve paradoxes in society. They can address social, economic, and environmental issues in the society. Because they address the collective anxieties and desires of a nation, cultural brands often have high equity. Cultural brands need to be dynamic because they tend to be relevant only at a certain period of time when certain contradictions are evident in the society. Therefore, cultural brands should always be aware of new emerging paradoxes that are changing over time.

Cultural marketing is the second building block of Marketing 3.0. Marketing 3.0 is an approach that addresses concerns and desires of global citizens. Companies practicing Marketing 3.0 should understand community issues that relates to their business (Kotler et al, 2010):

- **The age of creative society and human** spirit **marketing** - The third force that brings forth Marketing 3.0 is the rise of creative society has we have seen in the first chapter. People in creative society are right-brainers who work in creative sectors such as science, art, and professional services (Kotler et al, 2010). This type of society, according to Daniel Pink's A Whole New Mind, is the highest level of social development in human civilization. Pink portrays human evolution from the primitive hunter, farmer, and blue-collar worker who rely on their muscle and who then evolve into white-collar executives who rely on their left brain and finally progress to artists who rely on their right brain. Technology is once again the primary driver of this evolution. Like creative people, companies should think about their self-actualization beyond material objectives. They must understand what they are and why they are in business. They should know what they want to become. All these should be in the corporate mission, vision, and values. Profit will result from consumers' appreciation of these companies' contributions to human well-being.

The *spiritual or human spirit marketing* from a company's point of view is the third building block of Marketing 3.0.

Figure 34 - Three Forces shaping Marketing 3.0

Source: Kotler et al, 2010

The future of marketing

Marketing may be responsible for the decline in consumers' trust but it also has the biggest chance to solve this issue. After all, marketing is the managerial process that is the closest to the consumers. We believe it is time to put an end to the marketer consumer dichotomy. Marketers of any product or service

should realize that they are also consumers of other products and services. Consumers should also be aware that they might practice marketing as well in their daily lives to convince their fellow consumers. Everyone is both marketer and consumer. Marketing is not just something marketers do to consumers. Consumers are marketing to other consumers as well.

To Kotler et al. (2010): (…)"We see that marketing concepts over the past 60 years are mostly vertical. To regain the consumers' trust is to embrace what we call "the new consumer trust system."(…)

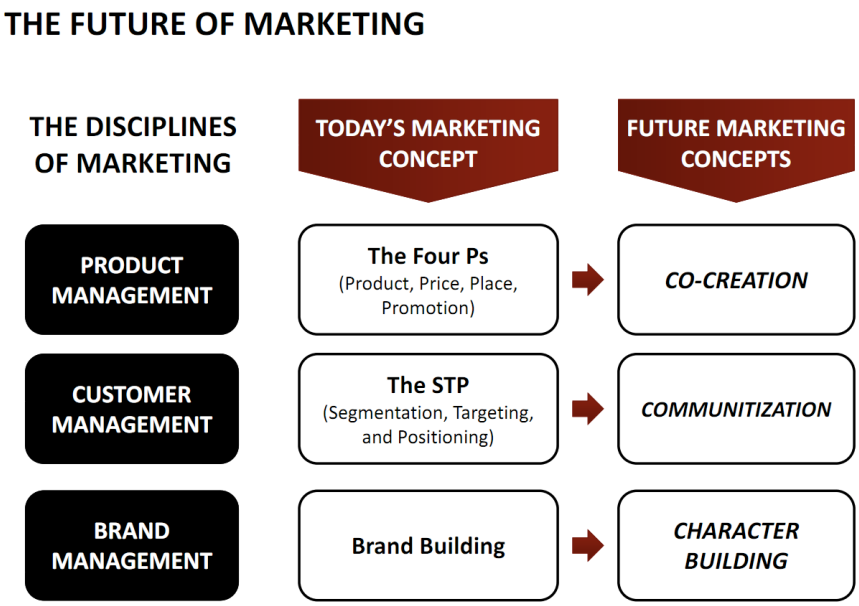
The new consumers trust system is horizontal. Consumers today gather in their own communities, co-create their own products and experiences, and only look outside of their community for admirable characters (see figure 35). They are skeptical because they know that good characters are scarce outside their communities. But once they find one, they will instantly be loyal evangelists. To succeed, companies should understand that consumers increasingly appreciate co-creation, communitization and characters (Kotler et al, 2010):

- Co-creation - Three key processes:
- First, companies should create what we call a "platform," which is a generic product that can be customized further.
- Secondly, let individual consumers within a network customize the platform to match their own unique identities.
- Finally, ask for consumer feedback and enrich the platform by incorporating all the customization efforts made by the network of consumers.
- Communization – Technology not only connects and propels countries and companies toward globalization but also connects and propels consumers toward communitization. The concept of communitization is closely related to the concept of tribalism in marketing:
- In Tribes, Seth Godin (2007) argued that consumers want to be connected to other consumers not to companies. Companies that want to embrace this new trend should accommodate this need and help consumers connect to one another in communities. Godin argued that succeeding in business requires the support of communities.
- According to Fournier and Lee (2009), consumers can organize into communities of pools, webs, or hubs* Consumers in pools share the same values although they do not necessarily interact with one another. The only thing keeping them together is their belief and strong affiliation to a brand.
- This type of community is a typical group of brand enthusiasts that many companies should nurture. Consumers in webs, on the other hand, interact with one another. This is a typical social media community where the bond is rooted in one-to-one relationships among the members. Consumers in hubs are different. They gravitate around a strong

figure and create a loyal fan base. The classification of community is consistent with Godin's argument that consumers are either connected to one another (webs), to a leader (hubs), or to an idea (pools). Godin, Fournier, and Lee all agree that communities exist not to serve the business but to service the members. Companies should be aware of this and participate in serving the members of the communities.

- Character Building - For brands to be able to connect with human beings, brands need to develop an authentic DNA that is the core of their true differentiation. This DNA will reflect the brand's identity in consumers' social networks. Brands with unique DNAs will have their characters built up throughout their lives. Achieving differentiation is already hard for marketers:
- Achieving authentic differentiation is even harder. In their new book, Authenticity, Pine and Gilmore argue that when today's consumers view a brand, they can and will immediately judge whether it is fake or real. Companies should always try to be real and deliver experiences that live up to what they claim. They should not try to only appear real in the advertising or they will instantly lose credibility. In the horizontal world of consumers, losing credibility means losing the whole network of potential buyers.

Figure 35 - The future of Marketing



Source: Kotler et al, 2010

The role of the Brands in Marketing 3.0

In 3.0 paradigm, marketing should be redefined as a consonant triangle of brand, positioning, and differentiation. To complete the triangle, we introduce the 3i: brand identity, brand integrity, and brand image. In the horizontal world of consumers, brand is useless if it only articulates it's positioning.

The brand may have a clear identity in consumers' minds but not necessarily a good one. Positioning is a mere claim that alerts consumers to be cautious of an inauthentic brand. In other words, the triangle is not complete without the differentiation. Differentiation is the brand's DNA that reflects the true integrity of the brand. It is a solid proof that a brand is delivering what it promises. It is essentially about delivering the promised performance and satisfaction to your customers. Differentiation that is synergetic to the positioning will automatically create a good brand image:

- Brand identity is about positioning your brand in the minds of the consumers. The positioning should be unique for your brand to be heard and noticed in the cluttered marketplace. It should also be relevant to the rational needs and wants of the consumers.
- Brand integrity is about fulfilling what is claimed through the positioning and differentiation of the brand. It is about being credible, fulfilling your promise, and establishing consumers' trust in your brand. Brand integrity is the spirit of the consumers.
- Brand image is about acquiring a strong share of the consumer's emotions. Your brand value should appeal to consumers' emotional needs and wants beyond product functionalities and features. You can see that the triangle is intended to be relevant to whole human beings with minds, hearts, and spirits.

3.3.1 Territorial marketing

The literature on territorial marketing and territorial branding suffers idiosyncrasy.
Multidisciplinary, relatively recent, often based on "anecdotal evidence from Unique case studies"(Lucarelli & Berg, 2011) and influenced by the normative approach of consultants
(Aronczyk, 2008; Boland, 2013) and other practitioners (Niedomysl & Jonasson, 2012), she is
scattered, lack of empirical data, and require more academic rigor. It was exposed that way by very recent examinations (Acharya & Rahman, 2016 Oguztimur & Akturan, 2015) and various previous literature reviews (Andersson, 2014; Berglund & Olsson, 2010; Chan & Marafa, 2013; Gertner, 2011a, 2011b; Lucarelli, 2012; Lucarelli & Berg, 2011). However, systematic and comprehensive overview of this emerging field of study, to attest that gap as fact, is still missing.

The origins

On the one hand, the overall globalization phenomenon generates a transformation ladders

spatial (Brenner, 2004), cuttings and territories of redistricting (Antheaume & Giraut 2005) and increased competition between territories (Thiard, 2007). On the other hand, organizations public and parastatal operating in an organizational environment permeated by New Public Management (Emery & Giauque, 2005; Joye, Decoutere, and Ruegg, 1996; Ritz, 2003).

In this context, there is a growing interest in territorial marketing strategies share of public entities in charge of territories, be it cities (Babey & Giauque, 2009) regions (Mihalis Kavaratzis, Warnaby, & Ashworth, 2015), States (Papadopoulos & Heslop, 2002), or other hybrid spaces (Zenker & Jacobsen, 2015). that applying many tools marketing from the private sector practices by the public and collective nature of territories proves delicate and requires adaptations (Graham, 1994; Stewart & Walsh, 1992; Walsh, 1991, 1995) territorial marketing approaches are emerging in a market logic and attractiveness selective retention for various targets such as investors, businesses, organizations, tourists or residents.

However, this is not a new phenomenon, as the marketing applied to territories dates back to the 19th century (Ward, 1998). As for the adoption of territorial marketing practices more sophisticated than the campaign mainly devoted to tourism (including posters early 20th century are the symbol), and the analysis thereof by researchers and consultants, they would have developed from the 1970s (Mihalis Kavaratzis, 2004, p. 59; Oguztimur & Akturan, 2015).

Origins at practice

At practice it was during the 1970s that the state of New York by example developed its branding strategy with the slogan and the "I love NY" logo, strategy can be described as a case study as it is taken as example of territorial branding in literature (Maynadier, 2009). Since then, the practice has grown and many territories have established territorial marketing strategies or territorial branding. The main European event regularly in literature and especially at conferences (Gayet, 2014) that we have identified are Barcelona (Belloso, 2011; de Moragas & Botella, 1995), Amsterdam and branding project "Iamsterdam" who was born in 2003 (Mihalis Kavaratzis, 2008), Lyon and the program "OnlyLyon" created in 200721 (M. v Chanoux, 2013. Mr. Chanoux & Keramidas, 2013) and Berlin and its branding campaign "Be Berlin" launched in 2008 (Häussermann & Columbus, 2003; Kalandides, 2006; Müller, 2013). Internationally, the list Case territories concerned is inexhaustible. It has for example Costa Rica ("Pura Vida "), Malaysia (" Truly Asia "), South Africa (" South Africa alive with possibilities "), the Kazakh capital Astana (Fauve, 2015; K. C. P. Low & Yermekbayeva, 2012), Bogota (A. Kalandides, 2011), etc.

Synthetically, five observations characterize the current state of research. Literature on branding and place marketing:

- Consists of a conceptual blur, divergent definitions and low seating theoretical. This contributes to a very wide range of objects of study;
- Made little reference to the classic literature on marketing, which itself provides definitions clear marketing and branding;
- Lack of empirical evidence and explanatory nature contributions. The numbers assumptions about the effects in terms of attractiveness remain unproven;
- Detached political and institutional considerations in which territories register. But they are crucial in terms of public management;
- And offers an important place in the rhetoric of consultants, with a large amount of prescriptive contributions published with a view to sharing good practices.

According to Gaio and Gouveia (2007), the management and the promotion of the territory is always a major focus of social and political organization, essentially due to its influence on the modus vivendi and its impact on economic development.

The concept of territorial marketing (or place marketing) has been addressed in more recent years. The territorial marketing (countries, regions, municipalities, cities and places) has been developed by adapting the marketing of products (goods and services) concepts. Uses concepts and marketing tools, a similar to those of companies working an orientation to the market (e.g, customers, competitors, functional integration and long-term perspective) (Azevedo, Magalhães & Pereira 2010) approach.

According to the American Marketing Association, territorial marketing's main function is to "Influence Audiences target to behave in some Manner positive with respect to the products or services associated with a specific place", involving, therefore, the analysis and satisfaction of stakeholder needs in order to create beneficial relationships in an exchange relationship with these and increase the value and attractiveness of the city by activating retro feeding the circle of Expectation – Action - Satisfaction.

To Azevedo, Magalhães and Pereira (2010), the city marketing constitutes an important Marketing application, with increasing importance for the development and growth of cities, regions and countries. As such, the marketing of cities is a continuous process of development and marketing / product promotion city, in whose center is the city, and its “external sale” as an effective tool for local management as an essential tool in the strategic design of the city and their competitiveness and sustainability. The ultimate goal of marketing is to increase the attractiveness of cities and the development of a positive image of the city, an image that has a huge influence on the city life and it is considered as a determinant factor of urban development.

Cities require a marketing policy that promotes attracting new businesses and retain existing ones, which promotes the attraction of new residents and keep existing ones, to boost tourism and streamline (attracting new visitors), holding events with regional significance, national and international (cultural, sporting and other events) of interest to its own residents as to the community at large. Thus, the implementation of a policy of integrated territorial marketing, constitutes an important strategic decision for a city (or territory), in that it increases the competitiveness and sustainability and attracts the few sources of wealth (Azevedo, Magalhães & Pereira, 2010).

To Gaio and Gouveia (2007), the territorial marketing acts for two types of audiences:

- Internal customers (residents, workers and organizations established in the area) that interests loyalty.
- External customers (non-residents organizations, with the potential to settle in the area, business visitors and tourists) that attract interest.

Within the activity of territorial marketing the brand is assumed as a core element. In this context, branding techniques used by cities to identify their added value, constitute themselves as a valuable instrument serving to the territorial competitiveness. The management of territorial brand refers to the construction of a set of images of the territory, in order to promote identification, reputation, goodwill, involvement and favorable to territorial development by target groups behavior and taking action based on a marketing that contributes to promote the development of a positive and competitive territorial identity (Gaio & Gouveia, 2007). The authors Gaio and Gouveia (2007) advocate the adoption of a strategy of umbrella brand to cities where identifies convergent goals of the different territorial actors. Thus, this strategy is more powerful than the fragmented brands, allows to reach more easily gain competitive enhanced visibility and notoriety, better conditions for the development of strategic partnerships, greater ease in establishing and developing relationships with public, capitalize on investments in marketing, increase protection against competition and expand the power supply.

To Azevedo, Magalhães and Pereira (2010), the identity and the image of the city are distinct from one another. Identity is the aspiration and reflects the perceptions, which should be developed and strengthened so that the image will last or approximates the desired (concept of the promotor). Combines the city "seems to be" what "actually is and really does," and especially, "which intends to become and to do." As for the image, this reflects current perceptions (concept of the receiver), ie, it is understood as existing mental representation in the minds of target audiences (both internal and external) different.

In Kotler and Gertner (2002) view, the image of a city results from its geography, history, proclamations, art and music, famous citizens and other elements.

Thus, as stated in a city brand building entails consideration of:

- a mental representation of the city, the conceptual nature;
- a structured set of profile attributes that define the city in its various dimensions, and the "product to sell."

Azevedo, Magalhães and Pereira (2010) argue the importance of the identity of the city, from the perspective of the target segment of the residents, creating a sense of belonging and raising self-esteem. The higher levels of self-esteem and sense of belonging, the greater the perceived quality of life, pride in the city and its brand and a commitment to citizenship, which contributes to the strengthening of cohesion around an identity, a position and an implementation of a city brand.

According to Azevedo, Magalhães and Pereira (2010), strategic management of a city requires a deep reflection on this, by the citizens and their representatives, leading to the definition of a set of objectives, determining a resource allocation and a series tactical decisions. Must be clearly action-oriented, to obtain results for the execution of plans, in short, to achieve the desired city model citizens. The strategic management of a city can be divided into four key stages:

- Formulation – is expected to know how to say where you are and where you are going. Knowing where implies understanding, from an external analysis which the environment and thus determine what the possible threats and opportunities, and internal analysis, which resources and competencies and conclude on what are the weaknesses and strengths of the city, or is, do a SWOT analysis. Know where you are going to involve getting a wide consensus that enables the underlying strategic decisions take our ambitions, they are the vision, mission and strategic objectives.
- Planning – it is important to know what to do and to decide, is expected to define a clear path and the what and how to do. At this stage, will have to decide on what activities and initiatives to be undertaken to achieve the objectives that have been proposed for the city.
- Implementation – is important to have the resources and skills needed to accomplish. At this stage require one to be rigorous and disciplined to comply with the implementation of the business plan.
- Control - is important to monitor and evaluate the interim results achieved: initiated the implementation, have to learn to look at the results, evaluating and promoting preventive and corrective actions taken as necessary every time.

From a strategic perspective of territorial marketing, Kotler et al (1993) developed a model where they are synthesized called the "Elements of the strategic marketing of the place", comprised of three levels:

- Group planning: as responsible for the management process aimed at obtaining results that were proposed [local and regional governments; the business community; citizens (Action Plan of city marketing, vision);
- The factors in marketing: as arguments of the "product" is the city that offer renders (infrastructure, people and institutions; image; attractions);
- The target markets: as selected segments for which the city will direct your offer (tourists and participants in conventions, foreign investment and export markets, manufacturers of goods and services, commercial offices and local corporate offices, new residents).

Thus, parallel to the corporate marketing variables, designated by four "P's" arise, in city marketing, the 4 "A's" (Azevedo, Magalhães & Pereira, 2010):

- Attraction - is the measure of the potential benefits of a city, which is determined by the weight given to various factors related to internal and external city.
- Accessibility - represents a dimension that is related is related to the quality of service in the city, is the ease of access to services and reducing waiting times.
- Amenities - are the amenities of the city, translated by the dynamics, the bustle of the city, embodied in cultural exhibitions, museums, places to rest, leisure and amusement parks, fairs and conferences.
- Action - Refers to actions for revitalization and integration of city resources to enhance their attractiveness, accessibility and amenity.

3.3.2 Crossing Branding and Innovation

According to Aaker (2011) there are two ways to compete in existing markets: (a) to gain brand preference and (b) to make competitors irrelevant:

- The first way, and also the most used, focuses on brand preference among brand choices considered by clients, ie, winning the competition. This strategy involves adopting incremental innovations to make the brand even more attractive and confident and make the cheapest deals through a (faster, cheaper and better) continuous improvement. This classic brand preference model is increasingly difficult to success in the current market path, as clients do not have the willingness or motivation to leave their usual brands. As such, the marks are regarded as similar, at least in relation to the functional benefits they offer.
- The second way is to change what people buy, creating new categories or subcategories that change the way they analyze purchase decisions and user experience. In this

strategy the goal is not simply to beat the competition, but make it irrelevant to convince customers to buy a category or subcategory to which all or almost all the alternative brands, are not considered relevant because they have no visibility or credibility in context. The challenge is to create differentiation and bases of loyalty to the brand consumers choose. To Leiser (2010) regarding the importance of brand credibility with customers can make the difference between success and failure.

According to Aaker (2011) brand relevance occurs when two conditions are met:

- the target category or subcategory is selected - the client has a desire or perceived need for the category or subcategory in question;
- the brand is the consideration set - The client considers the brand when making the decision to buy or use the target category or subcategory.

Incremental innovations provide discrete improvements that affect brand preference, with the level of differentiation small. In some cases, the improvement will be as small or as little appreciated by customers that their impact will not be noticed. Elsewhere, incremental innovation offers a measurable increase in health and brand loyalty. When innovation is substantial to offer basic competitive strategies and go-to-market can be the same or have only minor differences, but the improvement in the offer will be so great that even gets to define a new category or subcategory. The resulting difference is big, striking and even "news" in the context of purchase. When innovation is transformational (or disruptive), a basic offering qualitatively changed as to render obsolete existing offerings and ways of working for an application or target segment. Current competitors simply cease to be relevant. This type of innovation can involve a new technology, a reconfiguration of the product, a new approach to operations or distribution, the foundations of loyalty, how the offer is perceived and the assets and skills needed to produce it. The resulting difference is drastic, which leads to create a revolutionary factor in the market, and the new category or subcategory will be easier to identify.

According to Aaker (2011), to create new concepts, it is important to understand the two basic constructs that lie behind this process: organizational creativity and unmet needs:

- Research on creativity abound, and from them we can note some observations and guidelines that apply to the search of new services capable of transforming the market;
- Be curious. It is important to be curious about why an unexplained observation appeared or why a limitation affects. For example, Toyota is famous for its approach to the five "whys": problems are solved when we found the correct answer to the question "why?" Revealed to be the most basic cause of the situation;
- Absorb information. Information is the blood of the invention, and people and organizations with large knowledge bases can vary elements and make combinations.

The organization shall conduct a relentless search for new information and be able to rely on them to act at the right time;

- Listening to different people. Different people and organizations bring with them knowledge bases, experiences and new perspectives. Thus organizations benefit by having people from different backgrounds or have access to them. The essence of creativity is to combine ideas;
- Know and use the brainstorming. Do the brainstorming technique that is part of the rhythm of the organization;
- Forcing new perspectives. Each different perspective is a source of ideas. The goal is to challenge ideas and to take thought boundaries. In brand consulting and marketing teams Prophet innovative practice often encourage customers to begin by describing the worst possible idea;
- Do not just look for revolutionary ideas. Innovations need not be dramatically different and may be a simple idea. Most innovative only combines what is already available in a new way, applying existing technologies or components in a novel way or for a different application.

To Aaker (2011), the important concepts that can lead to substantial or transformational innovation almost always revolve around unmet needs. The focus on unmet needs in the customers is very useful because the products or services that respond to these needs have a high probability of being relevant and may lead to new categories or subcategories to the extent that represent voids or underserved markets. In many cases an insight to identify a bit obvious unmet need.

Many approaches or methods are useful in creating new concepts of offers, and, each of which represents a set of very different perspectives on the market and its dynamics, thus serving as a driver and catalyst for creativity. The challenge is to work with a set of approaches and not choose just one. David Aaker (2011) presents several approaches when detecting and generating insights, consisting among them:

- Unarticulated needs met by the customer. Some unmet needs are visible to customers in a bid, which often fail to articulate them when they have the opportunity. The trick is to have access to this information and make customers detente and communicate unmet needs. Through an informal conversation, one obtains a direct approach;
- Ethnographic research. This research assumes deepen customer insights to detect unmet needs that may be invisible to themselves and then apply their creativity to imagine new possibilities. Ethnographic research provides the necessary insights about customers and also a platform for generating creative offerings to meet these needs;

- Observation. Innovation can arise from simple observation and it is not necessary to have a normal research project. Just observe customers, vendors, colleagues or random people. One should pay attention to unusual and point all that is troublesome;
- Finding new applications, unintentional. The ethnographic research can clarify the applications, but they can also be discovered when we give our customers the means (an opinion poll, for example) to communicate how they are using the product or service. The secret is to be curious and to connect with customers;
- Partnership with the client in generating concepts. Customers can be effective partners in the development of revolutionary concepts, proposing solutions that, in turn, can be transformed into hotels. Dell, for example, has a site called IdeaStorm, where customers can give their ideas, observe and "vote" on the ideas of others;
- Needs no customers. Non-customers of the category or subcategory also have potential they represent uncharted territory, a new source of growth. It must seek to understand the "why" they are not buying or what is preventing it;
- Market trends. A trend of customers can become the engine of the category or subcategory but if an offer get access to multiple trends at once, even better, since competitors are facing stronger barriers;
- Global reverse innovation. The goal of global reverse innovation is to develop simpler and cheaper products for emerging markets like India and China, and then adapt them to developed markets like the U.S. and Europe. The idea is to start from scratch and create a project that meets the necessary functions at much lower costs;
- Open innovation. Creativity the most important is to establish connections, sometimes between sources or perspectives that seem apparently different. Products, technologies and ideas to individuals or companies from outside the organization can have incredible potential for the creative efforts of the company;
- Find role models. The main challenge is to see how other companies solve similar problems and establish connection. The ideas are hardly new, it's all a matter of reframes them;
- Competitive Analysis: looking for opportunities. Competition is often a source of new ideas when creating categories or subcategories vulnerable to the launch of more attractive offers. The idea is to take control of a new category or subcategory and then create another and overcome the competitors;
- Stimulated by technology concepts. Technological development can stimulate a concept, with the challenge to create or simulate an unmet, unrecognized or latent;

- Leverage assets and skills. To have durability a new category or subcategory must be based on hard assets and skills to duplicate. The process begins with accurate identification of what are the assets and skills, such as elements and marketing, distribution, production, design, R&D or brand.

Another approach, according to Aaker (2011), in order to get new ideas for new concepts is to observe how the categories or subcategories are defined and determine if any of these definitions leads to a new concept. The result of the stage of creation of concepts is not necessarily a concept that will be brought to market. Therefore, the process must be linked to strategies, potential opportunities and current offers and consider the threats around them. With this, some concepts and trends that are not yet ready for the market should be prioritized based on their impact and media exposure.

The path to success is to create and manage perceptions of a new category or subcategory of products, making competitors irrelevant, but another goal is just not to miss. The brand lost when fails to maintain its relevance and this can happen in two ways: the brand may lose relevance because the category or subcategory to which it is connected is in decline or move so that the brand is no longer considered relevant; the brand loses relevance if you stay stuck in the past and is appropriate only for older generations. Therefore, the best way to energize a business is to use innovation to improve supply (Aaker, 2011).

For a company to be innovative, able to make substantial and transformational innovations that create new categories or subcategories, it is necessary to have an organization to support and enable these actions. According to Aaker (2011), to create an innovative organization, you must have three characteristics inconsistent with each other, which are:

- Selective opportunism - good and ongoing foreign intelligence; ability to identify and understand trends; willingness to make significant, transformational and agility to attack the opportunities that arise when innovations, but selectively;
- Dynamic Commitment - willingness to focus, financing and execution behind every opportunity and engage in incremental innovation. The commitment needs to be dynamic, in the sense of abandoning disappointing ventures instead of having stubbornness;
- Allocation of resources at the organizational level - in order to encourage the operation of all business units, including the most powerful and enable the allocation of resources. Everything depends on the existence of assessment tools that we apply to all businesses within the organization, including those who have received the commitment.

3.3.3 From Social Media to Social Business Strategy

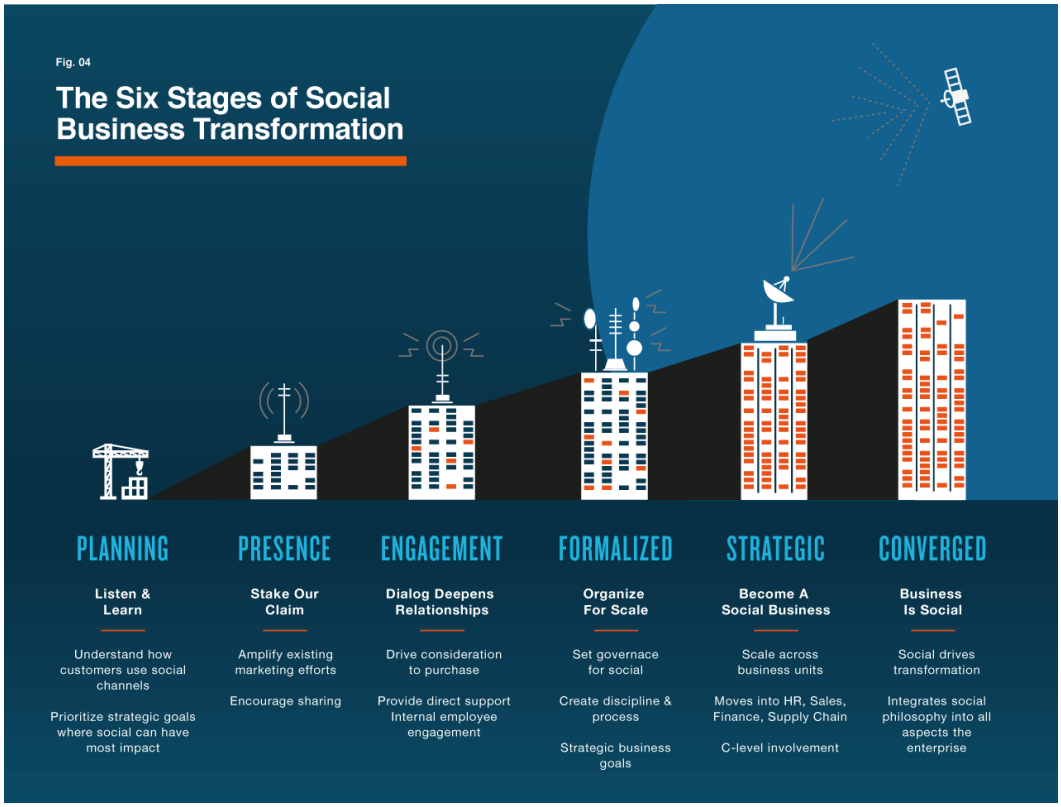
There is a difference between a social media strategy which lays out the channels, platforms, and tactics to support publishing, listening, and engagement to consumers and social business strategy which

is the integration of social technologies and processes into business values, processes, and practices to build relationships and spark conversations inside and outside the organization, creating value and optimizing impact for customers and the business alike (Li, Solis, Webber, & Szymanski, 2013).

According to this authors, the most important criteria for a successful social business strategy are twofold: clear alignment with the strategic business goals of an organization and organizational alignment and support that enables execution of that strategy.

These social media strategies and initiatives not only evolve into social businesses, but the journey also steers toward complete convergence where social is deeply embedded into the fabric of the organization. Li and Solis (2013) define six maturity stages in all, along with common success factors — the most important being a laser focus on employing social technologies to achieve business goals over time (see figure 36).

Figure 36 - Six Maturity Stages Model



Source: Li, Solis, Webber and Szymanski (2013)

According to Solis et al (2013), the Six stages are:

- Stage 1: Planning – "Listen to Learn"

The goal of this first stage is to ensure that there is a strong foundation for strategy development, organizational alignment, resource development, and execution. Altimeter found that companies with

successful social strategies spent a significant amount of time at this stage, building a firm foundation before moving on to the next stage. Three goals dominate the planning stage:

- Listen to customers to learn about their social behavior;
- Use pilot projects to prioritize social efforts. With so many options available in social, which initiatives and channels should you take on first? Many social strategists we interviewed pointed to pilot programs that provided decision makers the "digital proof points" that connect social media solutions to solving business problems. These programs helped them prioritize which initiatives would have the greatest impact;
- Use audits to assess internal readiness. Several companies we interviewed conducted competitive audits during planning to understand existing capabilities, as well as to understand how competitors are and are not using social media. And many run internal readiness audits to identify gaps and opportunities in how to support social media and what training and education is needed to build early understanding and support. One of the benefits of conducting these audits is to build the case for taking action.

- Stage 2: Presence — "Stake Our Claim"

Staking a claim represents a natural evolution from planning to action. As you move along the journey, your experience establishes a formal and informed presence in social media. This may involve launching a YouTube channel, creating a blog, promoting a Facebook page, or setting up a Twitter account. At this stage, the goal is merely to establish a presence, although some organizations may combine this with Stage 3 and begin to engage right away as well. Altimeter observed that successful organizations invested in three key initiatives to establish a solid foundation for future efforts, and also to ensure that those social efforts create business value:

- Leveraging social content to amplify existing marketing efforts. Marketing may focus on creating and publishing content through paid and/or owned media channels to create brand lift. Corporate communications may seek to employ earned media programs to encourage sharing that can dramatically increase traffic volume and audience reach. As an example, most of social media at Adobe centers around the marketing function, helping to drive awareness, engagement, and inform/educate its communities;
- Here, it's important to set a clear, integrated content strategy. Presence strategies rely on a steady flow of content to spark sharing and conversation within key networks. Thus a content strategy — which outlines the governance, roles, and responsibilities — is a crucial piece of this strategy;
- Providing information to support post-transaction issues;

- Aligning metrics with departmental or functional business objectives. Once content appears in social channels, alluring engagement metrics will quickly follow — the number of visits, fans, followers, shares, likes, and rewets will lull you into a sense of success. It's critical to create concrete goals for the strategy and metrics, even if they are softer metrics. Admittedly, this is difficult. Our survey data and interviews found that across the board, companies find this challenging.

- Stage 3: Engagement — "Dialog Deepens Relationships"

When organizations move into this stage, they make a commitment where social media is no longer a "nice to have" but instead is seen as a critical element in relationship building. Most organizations do not enter into this stage lightly but, rather, just the opposite. Some fear being overwhelmed with negative comments.

Those businesses that do well in this stage realize that social is not just about path to purchase or relegated to simple engagement metrics, but instead understand that eventually social media can affect the entire customer lifecycle.

Below are five typical factors that emerge in this phase:

- Spark or participate in conversations to build communities. Organizations are expanding presence strategies to become part of the community while increasing the overall size of their respective community within each social network. This is an approach that develops within this phase. Early on, engagement programs may start with the marketing or communications teams as a form of entertainment or facilitating general conversations. As time progresses, engagement initiatives expand through the use of creative, informative, or shareable content (blog posts, infographics, videos, et al.). The goal throughout is to introduce value into the community, amplify presence, and boost the numbers associated with the three F's (friends, fans, and followers);
- Use engagement and influence to speed path to purchase — efficiently. The traditional customer journey becomes dynamic when relationships formed via social contacts speed potential buyers along;
- Provide support through direct engagement — as well as between people. A natural extension of providing support is to do so directly through social channels;
- Having a clear social media policy is a start, but also needed are detailed social media content guidelines and playbooks, triage plan, and scenario rehearsals;
- Foster employee engagement through enterprise social networks. Just as importantly, many companies at this stage also look to Enterprise Social Networks (ESNs) to engage employees.

- Stage 4: Formalized — "Organize for Scale"

As social media spreads quickly throughout the organization, groups in departments and business units often act within their own silo, with minimal coordination between them. This increases the gap between social media strategy, executive expectations for business impact, and how other channel initiatives integrate with each other. Worse, it creates a branding gap between the social experiences outside stakeholders have with the company across various groups and desired brand experience as described in the company's style guide.

The result is that the organization ends up invariably presenting itself differently though these social channels without realizing the short- and long-term effects on customer impressions and engagement.

The risk of uncoordinated social initiatives is the main driver moving organizations into Stage 4, where a formalized approach focuses on three key activities:

- Establish an executive sponsor. Altimeter found a connection between successful social media strategies and executive sponsorship. This happens in one of the following three ways: 1) Executives in the company proactively raise their hands to empower an internal strategist; 2) An internal social media champion earns the support of an executive sponsor; or 3) An outside agency/consultancy effectively advocates the need to form an initial social business approach. The goal, we learned, is to bring order and create alignment throughout the organization, as well as to decide on which social efforts and technology platforms stay and which ones go;
- Creating a Hub (aka Center of Excellence). A frequent outcome of that enterprise social strategy is the need for a Center of Excellence (CoE) that organizes how social strategy, governance, initiative, and technologies are developed and deployed throughout the rest of the organization. The actual organizational model and its scope vary by organization, but gravitate to one of three types — "Centralized", "Hub and Spoke" , and "Multiple Hub and Spoke";
- Establishing organization-wide governance. Up to this stage, governance and organization had been focused on risk mitigation or clear protocol around engagement roles and scenarios. In Stage 4 Formalized, governance focuses on smoothing the way for not only better coordination but also in anticipation of scaling engagement with greater groups of customers and employees. It's the perennial question: "Who owns social media?" There are several questions underlying this query: 1) Who gets to make the decisions? 2) Who carries out the execution based on the context of each situation? 3) Who gets stuck with the social media bill, or how is it divvied up? And 4) Who else is simply kept in the loop? This becomes a critical step especially for companies within

regulated industries. While this didn't always appear in our research, Altimeter recommends that this step appears earlier in the process to mitigate risk.

- Stage 5: Strategic — "Becoming a Social Business"

As organizations migrate along the maturity model, the social media initiatives gain greater visibility as they begin to have real business impact. This captures the attention of C-level executives and department heads who see the potential of embracing the tenets of social business — where business acumen and social methodologies technologies become integrated and embedded into functions throughout the organization.

To make the transition and succeed at Stage 5, activities need to focus on the following:

- **Integrating into all areas of the business**. Altimeter believes that reaching this milestone is a watershed, because it represents a move toward true transformation into a social business. Because of the focus on driving business outcomes throughout the organization, traditional business metrics make their way into social media measurement frameworks. Businesses were inconsistent in what they measure in our research, but striving for business-caliber metrics in social was consistent across the board at this stage. Referring traffic, click-thru's, conversions, leads, sales, and Net Promoter Score (NPS), among many others, have the ability to reach across functional areas and business units, enabling executives to compare the impact of social efforts on business versus other activities. As a best practice, developing metrics frameworks to measure engagement and business activity and outcomes can and should occur earlier in the maturity stages;
- **Garnering executive engagement.** While executive support is crucial at all stages, in Stage 5, it becomes broader and much more hands-on. At this stage, top executives need to be seen as actively engaged and not just "waving the flag." Executives become an important stakeholder within social business strategy development as they review goals and objectives and ensure that social strategies are aligned;
- **Forming a steering committee**. While the CoE created in the Formalized Stage manages day-to-day coordination, there also needs to be a group of cross-functional stakeholders tasked with the development and implementation of strategic social media throughout the organization. Responsibilities range from integrating social business best practices into everyday operations to solving for enterprise and departmental-level challenges and aligning business objectives with social media investments;
- **Pushing social operations out to business units**. While a Center of Excellence and the hub-and-spoke model remain in place to provide enterprise-level guidance and

training, mini "hubs" begin to develop within each business unit that's focused on supporting social business initiatives specific to that group.

- Stage 6: Converged — "Business Is Social"

Becoming a social business is as aspirational as it is functional. It's a way of business. At the same time, embracing social media does not create a social business. But social media contributes to the migration of a business into becoming a more social entity. As a result of the cross-functional and executive support, social business strategies start to weave into the fabric of an evolving organization.

Organizations moving into this stage are driven by a vision that articulates how social media and digital overall improves customer and employee relationships and experiences. As a result, the steering committee and executive sponsor broaden their focus to explore how to converge social with all points of contact and communication.

To move into this stage, organizations need to make a commitment in the following areas:

- A single business strategy process. When social is converged, there is no separate social business strategy — there is just one strategy, one set of business objectives and outcomes;
- Merging social with digital. Organizations at this stage expand their focus beyond social to tackle and integrate with other strategic efforts, such as digital, mobile, and big data. For example, Sephora originally broke out its social team with its own dedicated writers and designers. But as social became more important strategically, it was brought back into the digital marketing team where it is now integrated for better coordination on initiatives like enabling in-store customer engagement on mobile devices;
- Creating holistic customer experiences with converged media. Advertising, marketing, customer service, and sales employ a converged approach that integrates paid, owned, and earned (POE) media to deliver a seamless and complementary experience across all digital and real-world channels;
- Develop a holistic social culture. At this stage, social technologies and methodologies have faded into the background, and with it, the distinction that social is special or different. It's simply the way you get work done, functioning much like the telephone.

The success factors of a social business strategy

According to Li and Solis (2012), the success factors of a social business strategy are:

- Business goal definition;
- Long-term vision for becoming a social business;
- Key executive support;
- Initiative roadmap;

- Process discipline and ongoing education;
- Staffing;
- Technology selection only after strategy is set.

Climbing the Social Business Hierarchy of Needs

According to Owyand (2011), the following recommendations are organized by dependency – much like Maslow's Hierarchy of Needs, companies must first meet baseline needs at the bottom of the pyramid before moving on to the next set of requirements (Owyang, 2011). The Social Business Hierarchy of Needs is a roadmap to achieve social business readiness (Owyand, 2011) (see figure 37):

- Foundation: First, develop a business plan and put governance in place;
- Formation: Next, connect business units to increase coordination and reduce duplication;
- After Foundation and Safety needs are met, companies can move onto Formation, by organizing social media deployments across the enterprise;
- Enablement: Grow by letting them prosper – give business units the support and flexibility to reach goals;
- Enlightenment: Finally, weave real-time market response into business processes and planning.

Figure 37 - Social Hierarchy of Needs

Source: Jeremiah Owyand (2011

3.3.4 Crossing Branding and Social Media

In an era when media is largely created and broadcast by the few to the many, social media emerged to facilitate the co-creation of media in addition to creating it. While difficult to trace its origins, the philosophy of social media dates back to the mid-1990s. It wasn't until the mid 2000s however, that

businesses would encounter the idea of a new medium where brand democracy prevailed over brand dictatorship (Li & Solis, 2013).

Suddenly the voice of the customer took on an entirely new meaning and the promise of customer centricity and engagement was thrust into the spotlight. But after all these years, businesses remain confounded. Even though most are experimenting with social media, how it improves relationships while impacting important business metrics is persistently elusive.

In a connected economy where information becomes a powerful currency, social data will only help you benchmark where you are to help visualize where you could be. The relationship between aspiration and reality now become a more informed set of goals and objectives driven by benchmarking against the industry and more importantly, benchmarking against possibilities.

The Pivot team studies the evolving social landscape (Li & Solis, 2013), for the period of 2012-2013, "State of Social Marketing" report, surveyed 181 social marketers and digital strategists who represent agencies and brands. What they have learned is that the fundamental drivers for social media have radically transformed.

What's clear however is that social media and the allure of conversations matter. At the top of the list, brands and marketers agree that conversations lift both brand and relevance. It's the new stimulus and relevance is appropriate to the matter at hand.

Solis (2013), proposes 10 Assumptions of Social Consumer Expectations:

- Exclusive content;
- Insight to make decisions (Moments of Truth);
- Customer service;
- Be part of a community;
- Deals/Promotions;
- Learn about new products;
- Ability to provide feedback for improvement (Influence Loop);
- Inclusive experience in social absent of websites;
- Loyalty/Rewards for engagement;
- Social commerce.

A prescient pillar of leadership takes more than intuition. It takes research balanced with a human algorithm. You can't make decisions about technology and behavior if you are not part of the very culture that's disrupting your business. Nor can you open engaging touch points if you're unfamiliar with the new journey of decision-making. Yet even today, businesses are largely making assumptions based not on the expectations or behavior of customers but instead the best practices of their peers.

Li and Solis (2013) published a report[2] that found businesses simply weren't aligning business goals with social media objectives. To realize the promise of social media however, strategists will have to make the effort to demonstrate business value, consumer trends, and the ability to use disruptive technology to disrupt competition rather than be disrupted by it (Solis, 2013). According to this study the greatest assets are both humility and aspiration. The ability to see things differently will in fact drive companies to do things differently. By applying a new philosophy and methodology to the digital approach will naturally make your brand, your business and your overall strategy, meaningful and social. This is after all, about experiences now more than ever (Solis, 2013).

Solis (2013), summarize the social media approach in ten steps:

- Benchmark against best in class, not just the competition;
- Research customer behavior and expectations;
- Consider existing and potentially new business objectives – align business and digital strategies accordingly;
- Apply needs and expectations within engagement and content strategies;
- Design dedicated yet united experiences across digital channels considering the context of behavior within each screen;
- Create a path of least resistance that maximizes the capabilities of each platform and screen;
- Re-imagine your vision and value for how disruptive technology enables a more meaningful mission and purpose;
- Embrace data science and digital anthropology to stay ahead of customer trends and the Competition;
- Plug in to your customer experience as it exists and uncover points of friction…then fix it to provide a seamless journey from the inside out;
- Listen. Learn. Engage. Adapt.

3.3.5 Engagement and enchantment

To enchant is to do more than persuade, it is to delight, to seduce, and to inspire. To persuade is rational and cerebral, to enchant is emotional and experiential – and in a world of information-overload and product clutter, it is the emotional and experiential that cuts through. When you enchant, you create a smile - and that smile becomes associated with who you are, what you do and why you do it. That smile is brand equity of the most valuable kind (Kawasaki, 2011).

[2] Presented at Pilot conference - research report – State of Social Marketing 2012-2013 by Brian Solis and Charlene Li

Enchantment is bigger than social commerce, but it's relevant, because it's about selling – selling with heart – and with social media. According to Kawasaki (2011) there are 10 things you need to know about how to enchant your customers – and make happiness your business model and marketing strategy.The first step of enchantment is to see the world from the customer's perspective – it's business 101 (and social intelligence); understand what it is exactly your customers want, and if you have what they want, understand if/how they can make the change to you, and whether making that change is worth their effort:

- To enchant customers and to make them smile you need to be likeable, and that means genuinely respecting and admiring your customers. Your customers should make you smile; as the Chinese proverb goes, if you don't like smiling, don't open a shop;
- To enchant customers, be trustworthy – that is, show yourself to be knowledgeable and competent. Trust is one of the five key obstacles every sale faces – no need, no money, no hurry, no desire, no trust.- Take a leaf from Zappos' book – help customers trust you with your actions rather than your words (money back guarantee – free shipping in both directions);
- To enchant customers, you need to make your product or service enchanting. An enchanting product or service is DICEE:
- Deep – has multiple layers of value,
- Intelligent – solves problems in smart ways,
- Complete – offers a turnkey experience,
- Empowering – helps people do what they do better,
- Elegant – works with people, harnesses what they already think and do.
- To enchant customers, be brief – respect people's time and attention. Few people have ever experienced a pitch or a presentation that is too short:
- If it's a presentation, stick to the 10:20:30 rule (10 slides max, 20 min max, 30 point font minimum),
- If it's an email, limit it to six sentences (or adopt the apocryphal Microsoft policy, if it doesn't fit in the subject line, it's too long – so pick up the phone),
- If it's a video clip, keep it to 60 seconds,
- If it's a report or business plan, 20 pages max,
- To enchant customers, allow them to trial your product or service in a way that is Easy, Immediate, Inexpensive, Concrete (Demonstrates Results), Reversible (Risk-Free) – and if you are in the launch phase, implement a mass product seeding campaign designed to delight and activate advocacy;

- To enchant customers, keep them enchanted. Enduring Enchantment happens when your customers internalize your brand, your product and your values, and make them their own. The customer journey begins with conformity (complying with a request to purchase, evolves through 'identification' (it's a brand/company for me) and matures to internalization (it's *my* brand/company). Enduring enchantment requires paying it forward; surprising and delighting your customers by giving – rather than taking;
- To enchant customers, remove the blocks to enchantment – Inertia, Hesitation to reduce options, fear of making a mistake, lack of role models, having a cause that doesn't connect. Use social proof (the power of example, lists and ubiquity to show you're a good choice), scarcity (that you offer a scarce (therefore, valuable) resource), stories (customer stories, and inside stories (behind the scenes) not stats), and superiority (show what you can do, that your competitors can't);
- To enchant customers, use media intelligently:
- For push media (bringing your story to people) email, Twitter, presentations, make it sensorial - one part text to two parts images, sound and video, make it short, and make it a story. Personalize the introduction, and ensure that it's useful, even if they don't buy;
- For 'pull media' (bringing people to your story – websites, blogs, Facebook, YouTube), make it fast, make it free (no sign-up roadblocks, fan-gating) and flash/Flash-free (no spin, no Adobe Flash). And offer content that has 'intrinsic value' (i.e…):
- Inspirational Value
- Entertainment Value
- Enlightenment Value
- Educational Value
- To enchant your customers, **know that enchantment begins at home**. Begin by enchanting your employees and your boss;
- To enchant employees – offer them MAP – Mastery, Autonomy and Purpose – not just a salary + bonus;
- To enchant your boss– reprioritize your efforts to make them successful; drop everything and do what they ask – make them look good.

3.4 In short

This co-creation, designt thinking and marketing chapter can be resumed by the following summaries:

1.Co-creation has radically converted the industrial system

Although the number of creative people is small their role is increasingly dominant in society and the business world. Businesses are systematically rediscovering themselves with new management and marketing dynamics facing complex global market realities. Customers are imposing greater levels of personalization and consumption experience. Customers are pressuring for the co-creation of value with them in recognition of their empowering, by: accessing and seeking information on-line, anytime, anywhere; offering unwanted feedbacks (criticisms and ideas); actively involving in communities of common interest and strong word-of-mouth dynamic currents of opinion; experimenting (co-creating) with other customers to discover own resolutions of their desires (rather than needs) and issues.

An overwhelming new "partnership paradigm" and mindset shift is revolutionizing business development between organizations and with their stakeholders (e.g. customers, employees, consumers, suppliers, distributors, etc) through co-creative engagement and interaction platforms, involved in deep, open and continuous dialogues and relationships.

2. Co-creation, design thinking and the new marketing paradigm for a strategic change

Co-creation is intrinsically connected to innovation and value-creation (e.g. shared value) since these common practices convey value-added insights involving all parties, altering the way organizations think about operations and policy.

Design thinking as an interdisciplinary and creative methodology, "human centered", introduces the role of design into the organizational innovation systems and boosts development processes. Originally it was founded on creativity processes of: divergence, synthesis, convergence and analysis for seeking solutions for problem-solving challenges. More recently a transformation has occurred to a system of creative intelligence/creative quotient (Nussbaum, 2011). These methods when applied in conjugation with the co-creative and marketing processes it potentiates the acquisition of knowledgeable insights generating added value for all parts: organizations, customers and all other stakeholders. In the emergence of the "experience economy" this combined approach could be the key for a sustainable flow of innovation required, today, for the survival of companies in the global market.

Marketing theory, innovation management and customer empowerment (i.e. internet community) are the fields that predominantly use these concepts bringing into their operational applications a creative, social an active process involving: (a) connections (e.g. interactions/dialogue between people); (b) collaboration (not just participation); and (c) co-creativity (not just co-production or co-construction).

Nevertheless companies in the co-creation age will have to become ever more flexible while managers skilled in collaboration and negotiation along with cross-boundary knowledge transfer abilities,

will became necessary and vital. So, companies will feel significant impacts in: (a) the innovation processes and practices; (b) the quality and speed of decisions relative to growth and filtering of ideas; (c) internal inspiration, customer knowledge acquisition, collaborative policy and development across the organization.

3. Engagement and social interactivity for innovation and sustainable development

According to Aaker (2011), to create an innovation organization three independent characteristics should be put in place: (a) selective opportunism (ability to gather external insights, identify and understand trends and explore the best opportunities); (b) dynamic commitment (willingness to focus, finance and execute every selected opportunity and engage in incremental innovation); and (c) allocation of resources in sufficient amounts to all levels of the company (e.g. business units).

Finally, organizations fully transformed into to the "Converged" state are now driven by an unified vision that articulates how social media and digital overall improves customer and employee relationships and experiences. For this transformation they must commit their practices to the following: (a) a single business process (one set only of strategic objectives and outcomes); (b) full merger between social and digital (no separation between social, digital, mobile, big data processes); (c) creating holistic customer experiences with converged media support; and (d) develop an holistic social culture.

In order to adjust their offer and business goals to these set of expectations companies should continuously apply a more "humanized research" of mixed methods revealing the new journey of consumers decision-making. Companies must Listen, Learn, Engage and Adapt (Solis, 2013).

Consumer engagement, enchantment and happiness is now needed, rather than persuasion alone, to delight (fully satisfy), seduce and inspire their customers (and their employees). Organizations must establish with their customers emotional relationships and experiences instead of rational and cerebral connections. They must use (social) media intelligently and "sell with the heart" (Kawasaki, 2011).

From this chapter it can be learnt for IDEAS(R)EVOLUTION methodological development the following aspects:

- Customers are pressuring for the co-creation of value with them in recognition of their empowering, by: accessing and seeking information on-line, anytime, anywhere; offering unwanted feedbacks (criticisms and ideas); actively involving in communities of common interest and strong word-of-mouth dynamic currents of opinion; experimenting (co-creating) with other customers to discover own resolutions of their desires;
- A new "partnership paradigm" - of Dialogue, Access, Risk Assessment and Transparency - and mindset shift is revolutionizing business between organizations and their stakeholders through co-creative engagement and interaction platforms, through

continuous dialogues and relationships. The reason why Ideas(R)Evolution already developed and successfully tested the “Ideas Cloud” social software;

- Co-creation and service-dominant logic is radically changing the industrial system to a dominant outside-in perspective with a focus on “humanized experiences”;
- Design thinking and its novel transformation of Creative Intelligence when applied in conjugation with the co-creative and marketing processes potentiates the acquisition of knowledgeable insights generating added value for all parts;
- Organizations in the co-creation age will have to become more flexible recruiting managers skilled in collaboration, negotiation and cross-boundary knowledge transfer. With this companies will feel significant impacts in: (a) the innovation processes and practices; (b) the quality and speed of decisions relative to growth and filtering of ideas; (c) internal inspiration, customer knowledge acquisition, collaborative policy and development across the organization;
- The integration of social technologies and processes into business practices to support listening (e.g. dialoguing) and engagement; building relationships, generation of discussion and creation of value (e.g. learning from user stories and ideas) for both customers and business are required to successfully compete in the market, today;
- Companies must transform to embed the social into the organizational strategy (Li & Solis, 2011). According to six maturity stages: (1) Planning (Listen to learn); (2) Presence (Stake our claim); (3) Engagement (Dialog deepens relationships); (4) Formalized (Organize for scale); (5) Strategic (Becoming a social business); and (6) Converged (Business is social);
- For this transformation they must commit their practices to: (a) a single business process (one set only of strategic objectives and outcomes); (b) full merger between social and digital (no separation between social, digital, mobile, big data processes); (c) creating holistic customer experiences with converged media support; and (d) develop an holistic social culture;
- Companies should practice a more “humanized research” of mixed methods revealing the new journey of consumers decision-making. Companies must Listen, Learn, Engage and Adapt;
- Organizations must establish with their customers emotional relationships and experiences instead of rational and cerebral connections. Consumer engagement, enchantment and happiness is the goasl, rather than persuasion alone, to delight (fully satisfy), seduce and inspire their customers (and their employees);

- Production of products and services in collaboration with the outside-in perspective (co-creation) should take in consideration the following constraints: (1) the dependency on external collaborators; (2) the expense to co-ordinate the co-creative process; (3) the new management skills for boundary spanning; (4) the new management methods for the workforce; (5) the external access to classified information and proprietary assets.

4 CHAPTER - LIVING LABS, SOCIAL SOFTWARE AND USERS MOTIVATION

In this chapter we discuss the connections between living labs, social softwares and users motivation that provide us the enabling supports to facilitate, nursure and develop the IDEAS(R)EVOLUTION innovation model. These emerging areas to innovation will allow us to deepen the stages and the phases on the initial conceptual model, contributing to differentiate our proposed model with more scientific and technological knowledge to be transform into operational models, procedures and new tools.

4.1 Living Labs window

All over Europe, a new type of innovation milieu is emerging, called Living Labs (LL) (Kareborn et al, 2009). The rationale behind these new milieus are to open company boundaries toward their environment and harvest creative ideas and work capabilities existing among different stakeholder groups, such as customers, competitors, providers, and the public in general. As such, it is similar in its approach to different open methodologies, e.g., open innovation (Chersbourgh, 2003) crowdsourcing (…) and involving lead users (Hippel, 2005).

The concept of Living Labs was originated at the Massachusetts Institute of Technology (MIT) by Prof. William J Mitchell, who was the formerly dean of the school of Architecture and Planning and head of the program in Media Arts and Sciences, both at MIT. Finally, he actually directs the Media Lab's Smart Cities research group. This creative concept was introduced to the research community as a possible research methodology for testing, validating, and realizing product and service prototypes and redefining complex solutions in real environment that suffer a continuous evolution. So, the first Living Labs were created as intelligent houses where the principal objective was to capture the use and the interactions of different hosts who lived in those houses during various days or weeks. This objective was facilitated through a sophisticated technology of intelligent sensors, which allowed researchers to capture the use that hosts made to the technology in the intelligent houses. After that the concept of Living Labs was modified and used in different contexts such as in Information and Communications Technology (ICT), especially in northern Europe.

Living Labs aim to bring laboratory experimentation to real life environments with the belief that this will provide improved insights into solution validity and product usefulness, while at the same time, surfacing new and unexpected patterns of use and user groups. Living Labs have diverse origins and come from a variety of traditions. This is reflected in the methodologies they use. Further, on their understanding of the concept *experimentation.* Most of the existing Living Labs have their origin either in academic research groups or in cities/regions, which promoted and foster innovation in their territory. The origins of Living Labs provide us with the first clue to the nature of their preferred methods. Many times,

Living Labs with an academic origin are more prone to use quantitative methods (quasi-experimentation and process research), whereas the ones originating from regional innovation endeavours use more qualitative methods (focus groups, interviews, ethnography).

Living Labs Concept

The concept of Living Labs is quite recent and has not been fully diffused in all European countries. So, it seems necessary to explain the current perspective on innovation and then compare it with the concept of Living Labs. The classic policy to promote innovation in various cities was mainly through the creation of science parks that promote e.g. microelectronics, biotechnology and venture capital (Silicon Valley) or health technology and computers (Southern Florida). These parks, mainly try to foster large scientific projects that attract great researchers and, depending upon its capabilities, cultivate interdisciplinary lines of research. Science parks have not always been successful in developing industrial innovations and specifically in involving end-users during the innovation process. In other words, the research and development of products or services is neither developed by end-users nor for end-users.

Tuomi (2006) explained that the traditional view on innovation assumed that both an inventor and an entrepreneur are responsible for the invention and commercialization of new products. However, in a user-centric view on innovation, both the inventor and the entrepreneur are the only users among other users.

"*They have specific roles, competences and motives, but in that regard, they do not fundamentally differ from other actors that collectively coproduce innovations as meaningful products*" (Tuomi, 2006).

This perspective clearly shows that innovations are produced through the interaction between the different stakeholders and end-users and that innovation can neither be localized within a single company, nor be only obtained from a single person.

Therefore, a new innovation process should probably include the following agents: the technology agents (universities and both public and private research centers), economic agents (industries and markets) and social agents (end-users and national governments). So, it is expected that the participation of these three stakeholders will guarantee the success along the innovation process.

Additionally, the Living Lab's innovation approach offers a systemic perspective where all the actors of the value chain participate: academia, governments, companies and citizens. Furthermore, where the infrastructures and methodologies for the evaluation are put at the disposal of all the actors, offering that way equal opportunities for exploration wherever it appears (Eriksson, Niitamo, & Kulkki, 2005). In contrast to traditional experimental sciences, Living Labs situate experimentation in multiple and context rich environments, trying to achieve a high degree of observation (Ballon, Pierson, & Delaere, 2005). Therefore the objective is not to try to understand causal relationships, refute hypotheses, or validate

theoretical propositions. Rather, the aim is somewhat more exploratory and explanatory; to understand how a product or service is adopted and used and how its meaning is socially constructed in different contexts. As such, Living Labs offer a new type of service that differentiates itself from both marketing validation exercises, where final products, not prototypes are involved, and usability analysis, where only a few users in control contexts are involved.

Moreover, we can situate Living Labs in the context of the product life cycle from its preconceptualization to its market validation in marketing studies. Living Labs are positioned just before market validation, where having prototypes at our disposal, we can test the user experience and find out possible uses in different contexts.

One precondition in Living Lab activities is that they are situated in a real-world context. During the design of the concept, Living Labs has been defined as an environment (Ballon, Pierson, & Delaere, 2005). (Schaffers et al., 2007), as a methodology (Eriksson et al., 2006), and as a system (CoreLabs, 2007a). The researcher do not see these three definitions as contradictory, but rather as complementary perspectives. Depending on which perspective one takes, certain themes come into focus:

- With the environmental perspective, objects such as technological platform and user communities come to the forefront.
- With the methodology perspective, processes such as data transfers and methods for user involvement are highlighted.
- The system perspective puts focus on the relation between the Living Lab as a whole and its interdependent parts.

Lama and Origin (2006), describe living labs as “a user-centric research methodology for sensing, prototyping, validating and refining complex solutions in multiple and evolving real life contexts”.

Living labs challenge us to examine new technologies in everyday contexts as used by people to achieve their goals. In this context, people from different areas of life explore innovative tools by interacting with them and discovering new ideas to expand their knowledge and to explore ways of acting (Lacasa, Martinez, Mendez, & Cortes, 2007).

Living labs are getting momentum, especially in developing communities; the driving force being resource-sharing capabilities coupled with technology advancement demanding extensive infrastructure that is not easy to acquire. This is especially true for small and medium enterprises and those who need high technology to achieve their goals. There is a reduction of technology and business risks, and the large companies have a large pool of ideas to help in their ventures (Lama & Origin, 2006).

According to Boronowsky, Herzog, Knackfub, and Lawo (2006) a living lab is more than a digital breeding area; it is a constructed set of technology, shared by various researchers sharing the same drive, focused on finding the results and helping one another to achieve their goals. Researchers within

living labs are restricted to monitoring from the inside what is going on. On the other hand, researchers are part of a living lab and have the capabilities to intervene in order to contribute to a better implementation of technological innovation in social practices, and deal with the unpredictable processes by reflecting on and consequently adjusting their own methodology (Boronowsky et al., 2006).

According to Higgins and Klein (2009), (…) "t*he active involvement of practitioners and researchers in complex live settings characterized as networks is not yet well understood; living labs attempt to address this. Live settings populated by human actors present certain challenges for aspiring the activities of studying, and acting in living social or organisational settings. Research driven interventions in live settings need to involve a range of methods: from ethnography through to economics. Furthermore, research and action strategies should accommodate practices and systems of innovation, spanning invention or creative processes through to industrial engineering, market forces and politics*".

From the various definitions it is obvious that there are two different streams of thoughts regarding the LL concept. Some definitions see are of the opinion that a LL is a pure "testbed" for innovative solutions while the other see a living labs as a pure means to conduct context research and co-creation with other users.

Folstad (2008; 2008b) explained that Living Lab literature has served to identify two aspects that may be used to discriminate between the Living Labs that comply with the general definition:

- *Contextualized co-creation:* Living Labs supporting context research and co-creation with users;
- *Testbed association:* Living Labs serving as a testbed extension, where testbed applications are accessed in contexts familiar to the users.

Different suggestions for key elements and characteristic have been propose. See for example Feurstein et al. (2008); Eriksson et al. (2006); Mulder et al. (2007). We have chosen the five key principles stemming from the CORELabs project, since it is grounded on a study that is based on the views of ten involved Living Labs (CoreLabs, 2007a):

- *Continuity*: This principle is important since good cross-border collaboration, which strengthens creativity and innovation, builds on trust, and this takes time to build up;
- *Openness*: The innovation process should be as open as possible, since the gathering of many perspectives and bringing enough power to achieve rapid progress is important. The open process also makes it possible to support the process of user-driven innovation, including users wherever they are and whoever they are;
- *Realism*: To generate results that are valid for real markets, it is necessary to facilitate as realistic use situations and behavior as possible. This principle also is relevant since

focusing on real users, in real-life situations is what distinguishes Living Labs from other kinds of open co-creation environments such as Second Life;

- *Empowerment of users*: The engagement of users is fundamental in order to bring innovation processes in a desired direction, based on the humans' needs and desires. Living Labs efficiency is based on the creative power of user communities; hence, it becomes important to motivate and empower the users to engage in these processes;
- *Spontaneity*: In order to succeed with new innovations, it is important to inspire usage, meet personal desires, and fit and contribute to societal and social needs. Here, it becomes important to have the ability to detect, aggregate, and analyse spontaneous users' reactions and ideas over time.

4.1.1 The Domain Landscape Of Living Lab

The Web 2.0 is empowering users making new R&D approaches emerge, where users are not considered anymore as being the observed subjects in functional tests but rather as being able to contribute and create value.

Mitchell (2006) argued that: (…) "*a Living Lab represents a user-centric research methodology for sensing, prototyping, validating and refining complex solutions in multiple and evolving real life contexts* "(…). He identified several impact and benefits:

- The first noticeable impact is the integration of the users into the development process for ensuring highly reliable market evaluation;
- The second one is the reduction of technology and business risks;
- The third one is that a Living Lab is beneficial to SME, micro-organizations and start-ups, since they can share resources without so much venture capital;
- The fourth one is that large companies have access to a broader base of ideas.

Ballon and et al. (2005) found that Test and Experimentation Platforms (TEPs) constituted a new and relatively uncharted territory. Therefore, they launched an extensive exploratory research on TEPs theoretical literature and empirical data. They identified six types of TEPs, namely:

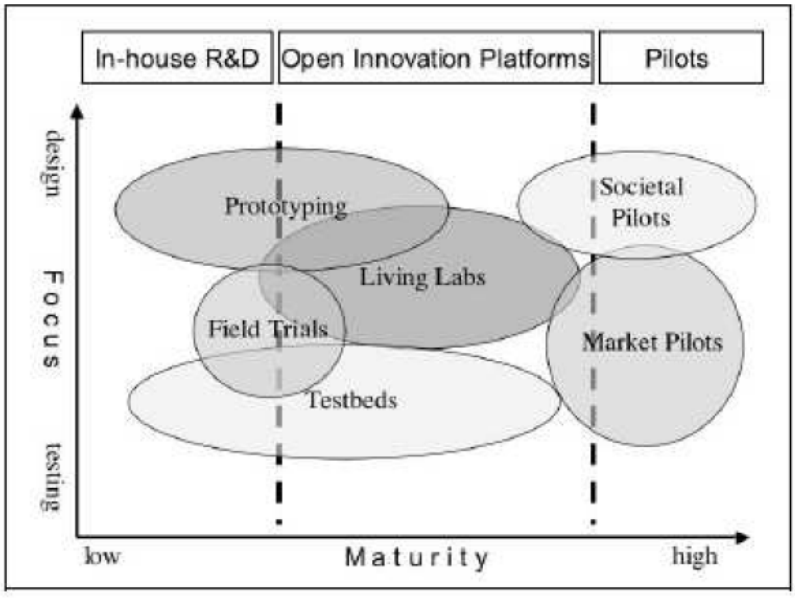
- prototyping platforms (including usability labs, software development environments);
- testbeds;
- field trials;
- living labs;
- market pilots, and
- societal pilots.

Interestingly, they gave the following definition to Living Lab, "*An experimentation environment in which technology is given shape in real life contexts and in which (end) users are considered 'co-producers'*" (Ballon et al, 2005).

They elaborated a domain landscape of TEPs with three different dimensions (see figure 38):

- The first dimension consists in the technological readiness that scales from low (immature technologies) to high maturity (mature technologies or applications that are almost market ready).
- The second dimension addresses the focus and balances in between testing and design. However, one can assume that this dimension is about evaluation. Finally,
- The third dimension consists in making a differentiation in between the degree of openness, ranging from in-house activities to open platforms.

Figure 38 - Conceptual Framework of Test and Experimentation



Source: Ballon et al (2005)

The different areas appearing like bubbles in the landscape correspond to the six identified TEPs. They are positioned in the landscape according to the two dimensions of focus and technology maturity they are intended to deal with.

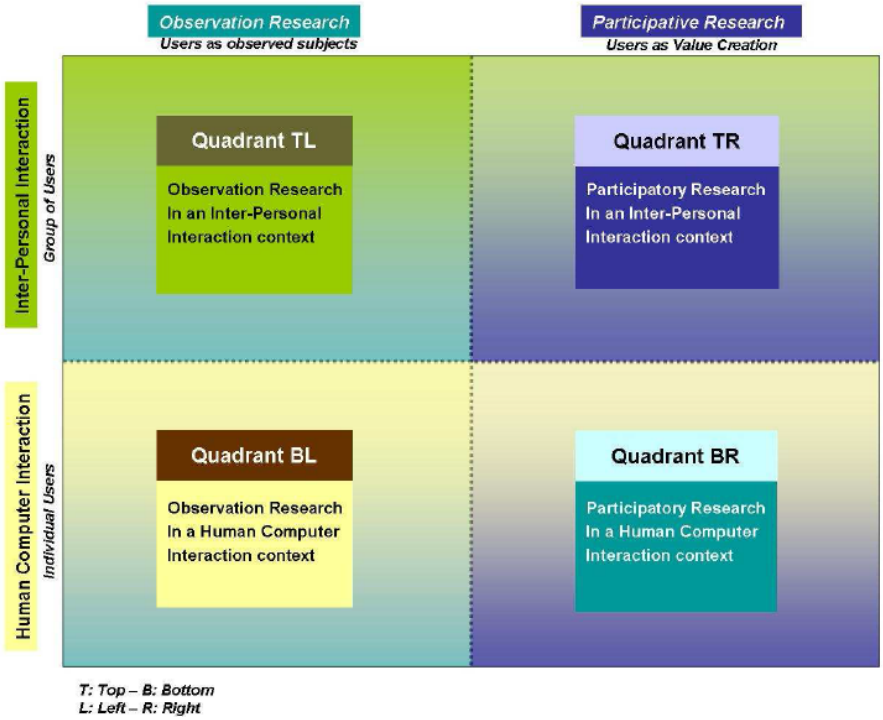
Towards a Domain Landscape of Living Lab Research

Pallot et al (2010), propose a new domain landscape for living lab research (see figure 39). The starting point on this improved model was a previous article on Living Lab research that was published in the ECOSPACE Newsletter by the authors (Pallot, et al., 2008). Several possible dimensions were identified and finally two main dimensions, namely the interaction mode and research type allowed

designing four quadrants (see figure 27). The main idea behind the design of this map is to show, like in the Sander's map, a progress from functional tests and usability analysis toward User co-Creation. However, the selection of these two dimensions is self-explained by the evolution of the role of users:

- The first dimension called "Interaction Mode" illustrates the way interaction with users is perceived. This dimension scales from Human-Computer Interaction (HCI), which addresses individual users, to Interpersonal Interaction that embeds social interaction within a group of people, especially the large ones like online communities.
- The second dimension "research type" splits the domain landscape into Observation Research where a user is considered as a subject and Participative Research where users actively contribute in co-creating value. This dimension resemble to the dimension on mind-set of Sander's map (see figure 27) presented in chapter 2.

Figure 39 - Dimensions and Four Quadrants of Living Lab Research Map



Source: Pallot et al (2010)

There are two complementary dimensions that could be useful in order to better characterise the current R&D and innovation trends and evolution. As a way to show the complementary to the main dimensions, they appear as diagonals. The first diagonal (BL, TR) illustrates the evolution current trend in terms of evaluation focus starting with reliability, as a first stage, where a functional test is applied in order to check if a feature works properly but without necessarily considering whether this feature could

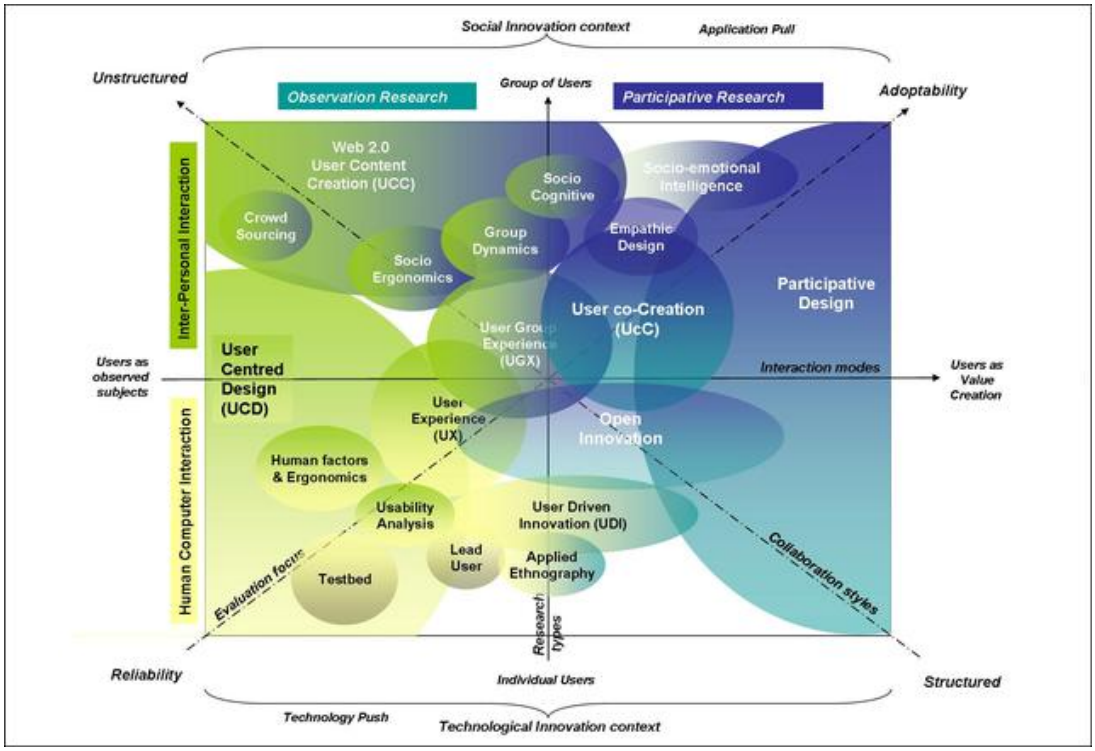
really be useful to the users. The second stage consists to carry on usability analysis of the obvious motivation of evaluating the user friendliness (degree of intuitivity) and ergonomic design. While the third stage “adaptability” brings the evaluation of personalisation capacities (degree of look and feel recomposing), the fourth one “adaptability allows users to create new features” (composing their own services).

The second diagonal (BR, TL) shows the recent evolution of collaboration style induced by network technologies such as the Internet and the Web. This dimension scale from structure collaboration with, for example, Symbiotic collaboration style (physical collocation) up to unstructured collaboration (Dorigo & Stützle, 2004) with for example Mass collaboration style (virtual or online collocation).

Technological innovation is included in the figure as corresponding to the HCI of the interaction dimension. Social innovation is also included in the figure as corresponding to the Interpersonal Interaction. While in the first case the focus is on developing a product (hardware), in the second case the priority is much more on developing specific services for people.

A number of research areas already existed for involving users in the R&D and innovation processes (see figure 40), such as: Web 2.0 User Created Content - Web 2.0 UCC (Garrett, 2002), User Centred Design (Aarts & Marzano, 2003), User Experience – UX (de Ruyter, van Loenen, & Teeven, 2007), User Co-creation – UC (Interact, 2009), User Centric-Innovation – UCI (Bilgram, Brem, & Voigt, 2008) and Driven-Innovation – UDI (Verganti, 2007). Like in Sander’s landscape of design research (see figure 27), it makes sense to include participatory design.

Figure 40 - Domain Landscape of the Living Lab Research Map



Source: Pallot (2010)

The largest areas in the map represent the most populated ones like in Sander's landscape on design research. User-Centred Design (UCD) and Participatory Design (Schuler & Namioka, 1997) as well as Web 2.0 User Content Creation (UCC) represent the largest areas that are confirmed by the number of published scientific papers. In contrast with Sander's Landscape, besides the fact that it also includes usability analysis as well as human factors and ergonomics, the UCD area overlaps with User Experience (UX).

On the right hand side, the Participatory design territory is inhabited by various artefacts intended to engage users in the group cognition leading to the emergence of new ideas, scenarios and concepts. Several smaller bubbles are overlapping the participative design territory; among them appear the Empathic Design (ED), User Co-creation (UC) (Interact, 2009), User Driven Innovation (UDI) or User-Centric Innovation (Bilgram, Brem, & Voigt, 2008) and Socio-Emotional Intelligence (SEI). Those bubbles are linking UCD with Participative Design.

Finally, the User Group Experience (UGX) bubble appears to have a group of users experience instead of individual user experience (UX) (Fleming, 1998) in order to let a community share experiences that lead to new insights, ideas and breakthrough scenarios. Contextual Design (Beyer & Holtzblatt, 1998) is currently still to be included in the Participatory Design territory.

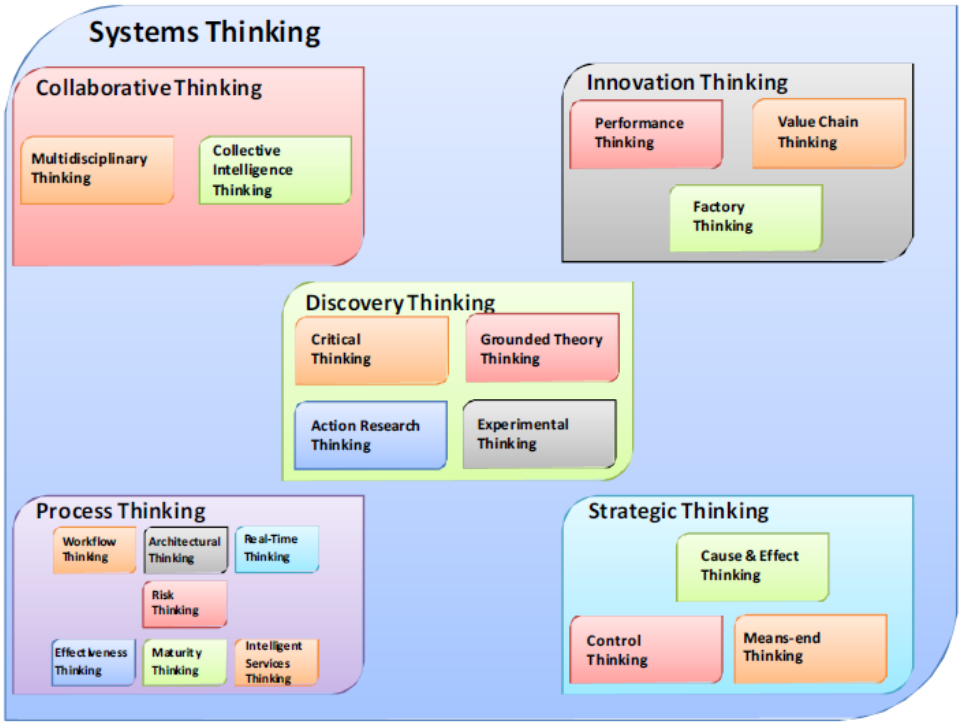
Pallot et al (2010) believe that the concept of UGX brings the socio-emotional perspective into user experience. This would constitute a major step forward in the direction of experiential service platform with a strong connection to Empathic Design and Socio-Emotional Intelligence. This would allow researchers, developers and users move more concretely towards User Co-creation. This new research area suits, particularly the Front-End of Innovation in order to feed the R&D process with group and empathical insights unleashing the power of people ideas, as so, it fulfills IDEAS(R)EVOLUTION purpose and methodology.

4.1.2 Living Lab Thinking Framework

The main objective of the LL is to create prosperous communities. Many critical success factors for prosperous communities are stated in research papers, but the ones mentioned most of the time is connected to trust, involvement of members in the innovation process, access to adequate knowledge regarding the problem environment, state-of-the-art ICT tools and methodologies, and good governance. A LL supports core research capabilities and shared understanding in order to learn and understand complexity. The Community LL framework is based on systems thinking grounding as presented in figure 41.

Thinking is a process of figuring things out, knowing why and how things work. The framework presented provides the researchers' perspectives of the various thinking activities and processes for a Living Lab. A LL can be seen as thinking and rethinking support environments, connected to generic decision making (intelligence, design, choice and implementation) and action research (sense learns, act) processes. Simply put, a LL framework based on thinking as depicted in figure 41 can function as a springboard to prosperous communities to build entrepreneurial capacities and achieve sustainable continuous improvement.

Figure 41 - Living Lab Thinking Framework



Source: SystemsThinking.org (2009)

According to SystemsThinking.org (2009), systems thinking is, more than anything else, a mindset for understanding how things work. It is a perspective for going beyond the events, to looking for patterns of behavior, to seeking underlying systemic interrelationships which are responsible for the patterns of behavior and the events. Systems thinking embodies a world-view. A world-view which implies that the foundation for understanding lies in interpreting interrelationships within systems. Interrelationships which are responsible for the manner in which systems operate. Interrelationships which result in the patterns of behavior and events we perceive.

- S*ystems thinking* in this context advocates collaborative, innovation, discovery, strategic and process thinking;
- *Collaboration thinking* is supported by multidisciplinary and collective intelligence thinking;
- Innovative thinking is supported by performance, value chain and factory thinking;
- *Innovative thinking* is linked to creative thinking and problem solving; generate something new or find new ways to solve problems. Innovative thinking means having to answer simple questions such as: What makes an idea a good idea? How do you consistently generate good ideas? How do you find that magic 'x factor' that makes an idea stand out? How can I be more creative and inventive? What do I do with my ideas? Where do

I go to solve my problems? How do I look for opportunities to innovate? If I think I have found an opportunity, how do I capitalize on it? How do I get my opportunity implemented? What resources are available to help me innovate? What ideas do you believe to be creative? Who do you consider to be creative?;

- *Performance thinking* helps organizations achieve their strategic goals. Performance thinking is the process of assessing progress toward achieving predetermined goals. Performance management is built on that process, adding the relevant communication and action on the progress achieved against these predetermined.

The main purpose of performance thinking is to link performance objectives and organizational strategies to increase profit. A performance problem is any gap between desired results and actual results. Performance improvement is any effort targeted at closing the gap between actual results and desired results.

Thompson, Strickland, and Gamble (2007) make the statement, "As significant as the strategy to performance gap is at most companies, management can close it. They can work on both sides of the equation, raising standards for both planning and execution simultaneously."

The process starts with grounded theory thinking:

- Identify and analyze key issues;
- Find all the role players;
- Create partnerships;
- Using a bottom up collaborative thinking approach.

The next process uses value chain thinking to analyse and brainstorm the value chains:

- *Value chain thinking* is the interdisciplinary process of determining what the full range of activities is to release a product or service to the market. In order to reduce the cost and improve the economic value of these activities throughout the value chain, promoting innovation and cooperation.
- *Discovery thinking* is supported by critical, grounded theory, action research and experimental research thinking. This thinking process stimulates innovation by finding patterns in data, events, design processes, research processes decision making. These patterns are transformed into knowledge and best practices in order to enhance human cognition and deriving fundamental insight into complex problems and systems. The discovery process is supported by analytical and critical thinking research processes.
- *Critical thinking* is the means and ends of learning. The critical thinker should remain open to new ideas and think like a scientist, applying skepticism to ways of doing things; use and create his/her own information and reject information that is irrelevant and faulty;

state his/her own arguments; come to his/her own conclusions; listen to other peoples and tolerate their thinking.

- *Process thinking* is supported by workflow, architectural, real time, risk, effectiveness, maturity and intelligent services thinking. Process thinking, focus on identification, understanding, design and management of processes. Work is performed by activities and related activities form workflows and are managed as an objective integrated system. The majority of the problems in systems are connected to bad processes and not to people, that's why process thinking must ensure that the needed processes are in place. Work smarter and not harder by improving the processes and don't place the blame on people. Process thinking is supported by workflow, architectural, real time, risk, effectiveness, maturity and intelligent services thinking.
- *Strategic thinking* is a way of thinking about changes and preparing for them. Strategic thinking should be seen as a process to help an organization to confront change, analyze its impact and look for new opportunities. *Strategic thinking* is supported by sustainability thinking, objective thinking and means ends thinking.

4.1.3 Crossing LLbs, Business Models and Innovation Management

In order to be sustainable and succeed, Living Labs need to adopt business models that allow them to create and capture value as any other organization. However, until now most of the Living Labs projects have been sponsored by public capital or developed as experiments driven by organizations dependent or linked to the academy. There is, of course, a sense of urgency in the community in order to make these organizations self sustainable with regular funding that doesn't depend on winning the next local, national or European project.

There is also a case of path dependence, where Living Labs coming from participatory research exercises see themselves many times solely as purveyors of this type of service, a service that is easily assimilated to applied ethnography or product validation. That vision many times limits its capacity of projection beyond validation.

Living Labs business models cannot be characterized in the vacuum and they couldn't either exist there. Their existence and works is linked to an Open Conception of Innovation and Innovation Management that in the recent years became conceptually dominant and considered superior to an integrated or closed version of it (Chesbrough H. , 2003, 2006).

Open Innovation (Chesbrough H. , 2003, 2006) considers that because of changes in the structure and availability of knowledge in the world, companies cannot rely anymore, only in their internal R&D capacities as they did before if they want to be effective and they should integrate ideas from the outside

and put in place a mechanism that allow them to capture value from ideas inside that cannot be developed there.

Therefore, companies, even big ones, cannot rely anymore solely on their internal R&D department and be confident that there they can find the best ideas, the best solutions and the state of the art on the subjects that they work on. Companies must rely on ideas from the outside and bring them inside the company if they want to remain competitive.

What is important in this process, in relation to the business model, is that it is driven by it. Is the business model of the company the one who determines which ideas should be brought in and which ones should be externalize in the form of spin-offs, selling the IP or any other kind of venture.

The role that Living Labs play in this context, is the one of intermediary in the process of bringing in and exploring new ideas (Almirall & Wareham, 2008). Living Labs mediate between a new actor in the innovation process: users and companies. They do that by providing structure and governance to customer intervention in this process. However, Living Labs, because of their nature as public private partnership organizations, also play a more traditional role in connecting and enabling join projects between academia, private and public organizations.

Nevertheless, the offering of Living Labs differentiate them from other well known organizations also acting as intermediaries such as Innocentive, NineSigma, etc.. In these cases, the intermediary performs a search function on the basis of a request for a particular problem, once the solution has been found; it is incorporated into the company.

In the case of Living Labs we can differentiate two distinct offerings(Almirall & Wareham, 2008).

- A traditional intermediary - normally they just captures insights from users and brings them inside the company. These insights are related to how the product or service fits user expectations in terms or needs and want, interaction and business model.
- Living Labs however, provide also a different kind of offering. This is the orchestration of groups and communities around a research problem. Living Labs effectively select not only users, but companies, research groups and public organizations and procure funding - normally from national, regional or european projects - in order to carry on a research agenda. This offering also materializes in many cases in providing a technological platform where experimentation can be carried on.

Therefore we are facing a completely different service than the one provided by traditional intermediaries, one that transcends a concrete problem, product or service and puts Living Labs on an equal basis to the companies requesting it.

This second offering is the one that determines Living Labs operation and to a large extend their main contribution in terms of novelty. However, it has large implications in terms of their ability to capture value and financing:

- Living Labs need to be able to orchestrate open process of innovation with the involvement of partners that in many scenarios will view themselves as competitors, they need to be able to capture value from the process itself and not solely from the partners.
- This orchestration is what sustains the case for public support for Living Labs and its use as a tool in innovation policy at the same time that fosters new products and services involves the local community of users at a societal level contributing to the development of the local Information society by promoting innovation and creativity, increasing its social value and awareness and therefore pushing the demand and willingness to try and adopt early products or prototypes not fully tested and not completely operational.

In fact, if Living Labs were only able to sustain from services provided to partners, they will be very fast lock in a closed innovation perspective by companies that could think this is the more appropriate way to conduct their business or alternatively to problems that interests only the dominant companies.

The existence and level of strength of this demand is a key factor in promoting innovation and development and therefore growth (Bhidé, 2008).We can find some indirect evidence of this offering of orchestration when looking at the customers of Living Labs, there we can find a number of diverse organizations involved in innovation projects.

4.1.4 Crossing LLbs, open innovation, it platforms, citizens' participation

New paradigms, such as Open Innovation (Chesbrough H. , 2003, 2006) and Web 2.0 (O'Reilly, 2004) as well as Living Labs operating as a User Centred Open Innovation Ecosystem (Pallot, 2009), promote a more proactive role of users in the R&D process. However, a number of existing methods for involving users are abundantly described in the literature, such as Lead User (von Hippel, 2005), User Driven Innovation (von Hippel, 2005), User Centred Design (von Hippel, 2005) and User Created Content (O'Reilly, 1998) as well as User Co-Creation (Prahalad & Ramaswamy, 2000). Sofar this chapter explored the domain landscape of Living Lab research, based on the landscape of human-centred design research (Sanders & Stappers, 2008) and later introduced in the domain of Living Lab research (Mulder & Stappers, 2009). We need to take into account the links with existing theories such as Social Capital Theory (Nahapiet and Ghoshal, 1998) and Social Cognitive Theory (Bandura, 1986) as well as Socio-Emotional Intelligence Theory (Goleman, 1998). There is also the need to explore the creation of User Group Experience concept for bringing the socio-emotional perspective (Norman, 1995; Norman, 1998, Norman, 2004, Norman, 2007, Goleman, 1998) into User Experience (Fleming, 1998) that appears too much focusing on individual users and usability.

While the Living Lab ecosystem, through openness, multicultural and multidisciplinary aspects, conveys the necessary level of diversity, it enables the emergence of breakthrough ideas, concepts and scenarios leading to adoptable innovative solutions. A Living Lab Empowers user communities like it is done with Web 2.0 (Frappaolo & Keldsen, 2008; O'Reilly & Battelle, 2009) applications such as YouTube, Flickr, Delicious, or Twitter where users are creating content and value. There are even examples of stigmergic or mass collaboration where citizens are collectively creating content (e.g. Wikipedia) for the benefit of the society at large.

A Living Lab is an Open Innovation ecosystem frequently operating in the context of competitiveness clusters and public development agencies within social innovation environments engaging local authorities in territories such as cities, agglomerations, regions. A Living Lab can operate with a research and innovation platform for providing access to science and innovation services allowing enterprises and users/citizens either as entrepreneurs or communities. The main objectives consist to explore new ideas and concepts, experiment new artefacts and evaluate breakthrough scenario that could be turned into successful innovations. There are different application examples such as eHealth, Ambient Assisted Living, eInclusion, eTransportation, eGovernment, Smart City, ICT for Energy, and ICT for Environment.

The Social dynamics of the Living Lab approach ensures a wide and rapid spread (viral adoption phenomenon) of innovative solutions through the socio-emotional intelligence mechanism (Goleman, 1998). A Living Lab environment needs to have one or several specific technology platforms (eHealth, eParticipation, eInclusion and so on), science & innovation services and user/citizen communities enabling the exploration of innovative scenarios including new concepts turned into technological artefacts. The experimentation and evaluation of the resulting scenarios and technological artefacts are driven by users within a real life context through a socio-economic (societal, environmental, health and energy cost/value), socio-ergonomic (user friendliness) and socio-cognitive (intuitive level) as well as adoptability perspectives (potential level of viral adoption).

Living Labs are standing at the crossroads of different society trends like citizens engaged into a more participative approach, businesses and local authorities as well as user communities are gathering within public-private–people partnership initiatives. They are also at the crossroads of different paradigms and technological streams such as Future Internet, Open Innovation, User co-Creation, User Content Creation and Social Interaction (Web2.0), Mass Collaboration (i.e. Wikipedia), and Cloud Computing where the Internet is the cloud, also named "the disappearing IT infrastructure".

However, there are still open questions such as articulating the various relevant research areas, methods and tools within the Living Lab research domain and identifying appropriate concepts for supporting user co-creation.

Community Living Lab as a Collaborative Innovation Environment

A Living Lab is a new way to deal with community-driven innovation in real-life contexts. The Living Lab concept is fuelled by knowledge sharing, collaboration and experimenting in open real environments.The Living Lab approach provides its user group with an opportunity to develop a much deeper understanding of how the various components in their functional environment operate and interrelate. In the research community the Living Lab concept seems to be gaining increasing acceptance as a way to deal with innovation and to get insight into the innovation process (Jacobus et al,. 2009).

Many private and public investments in community development fail to produce real and sustaining value for communities. Some of the deficiencies observed are that traditional community development projects are initiated and executed in a closed and artificial laboratory environment with limited interaction with, and understanding of the real needs, the potential problems and value chains of the community (Jacobus et al,. 2009).

The approach suggested is to build collaborative systems, called Living Labs (LL), for communities which will engage and empower them to experiment and learn in real-world environments and to create innovative solutions to their problems.

From an educational perspective the role and important impact of implemented living labs are becoming more evident. Pretorius and Van der Walt (2007) opened an article entitled: Living Lab as an Innovative Tool in Education by explaining that: Today's ICT learning environments are ventures involving huge streams of course material development, knowledge transfer, and performance measuring systems.

We believe that one of the best tools to promote highly innovative action research in different application areas is through the use of "living labs". Living labs is a highly evolving theory and practice, related to almost any managerial or technical problem, which can be used to help organizations in knowing where to focus their management attention. According to Core-Labs/ENoLL, (2007:3) (CoreLabs, 2007a) a Living Lab enables users to take active part in research and innovation.

Actual methodologies and living labs – a discussion

As we have seen Living Labs are quite a comprehensive set of techniques to reach their objectives. Most of these are borrowed from qualitative research and anthropology e.g. ethnography and case studies. So, to what extent these methods and techniques are useful in accomplishing the objectives of the Living Labs are yet to be seen. Living Labs hypothesize that close collaboration with end-users in real environments will help in validating proposed solutions and in finding out the meanings that these technologies have for both individuals and groups (Laboranova, 2007).

However, we encountered the following problems through the process: the lack of scalability, the difficulty of capturing “right moments”, the lack of feedback, the difficulties in having several experiments and finally the focus on the average or common traits.

A. The lack of Scalability

The lack of scalability is possibly the biggest methodological threat that Living Labs have. If the hypothesis of Living Labs is trying to discover the meanings that people attribute to technologies as well as possible novel uses, then large groups of people should necessarily be involved. However, on the other side, we see that the majority of techniques being used are based on qualitative research techniques that scale very poorly due to their need for human intervention. There have been attempts to use IT technologies in order to reduce this problem, the most notable ones are the use of mobile devices (mobile phones and paths) in i-city and IBBT. However, these results are still in their nascent and only cover the possibility of doing small ad-hoc surveys without the personal interaction. Scalability is also the biggest problem that Living Labs confront in terms of methodology because finding sample outliers implies the need to scan a sizeable number of users.

B.The Focus on the Average

A second problem lies in the methodologies themselves. Most of these are designed for aggregating or clustering what is common in a group of cases, either from a qualitative or quantitative point of view. However, Living Labs aims not only for identifying what is common in a group of cases, but for finding exceptions and un-envisioned target groups. Nowadays, this is commonly sought after finding common uses, tasks which is undoubtedly time consuming. Moreover, not all outliers are valid cases per se, only the ones that can be reproduced and adapted at societal level. Often when the cases are removed from the current context they are no longer valid, and hence less generalizable to a broader context.

C. The difficulty of capturing “right moments”

Many of the ethnography methodologies used in the Living Labs face the difficulty of short trials that collide with the slower paced characteristics of ethnography. Also, because the study is centered on the generation of unknown, or unexpected phenomenon, capturing the right moments of this usage is crucial while, unfortunately, these moments are elusive by definition.

Logging, so widely used in the Web 2.0 testing, automatic diaries and other forms of automated data registration are certainly a possible approach. However, their use has been restricted, until now, to online applications.

D. The lack of Feedback

Living Labs are built on the metaphor for transforming laboratory research to real-life environments. Furthermore, laboratories are about experimentation, direct observation and continuous feedback. However, in actual Living Lab implementations, observation is mediated. This means that actual Living Labs do not only mediate the observation, but also the responses to it. Commonly, in working Living Labs a technology or product is introduced by groups of scientists or engineers, whilst different groups are in charge of the "social experiment". The results of social observation are then translated to the first groups who can or cannot adapt these results to a second round of experiments. Obviously, much is lost during the process. Compared with testing methodologies currently in use in Web 2.0 or leading Web environments where experiments are launched and modified by same group of scientists much remains to be learned.

E. Difficulties in having multiple experiments running

Also an important element of Living Lab experimentation is diversity. It is not only in the user group but also in the experiments proposed. However, carrying out experiments with physical elements in real settings is more costly than traditional usability or laboratory experiments where a few samples are enough to perform them. Again, this contrasts with the Web 2.0 experience where experimentation, because of its virtual nature, is for less costly.

As we discussed earlier, current methodologies do not represent the full extent of problems and difficulties. However, it also sees that some lessons can be learned from Best Practices Web 2.0 experiences. The key element of these experiences is the use of IT for automatic data gathering, selection and its future use online. Certainly, this concept should be also applied to the Living Labs experience if the scalability trap has to be ever solved. The main difference of Living Labs and Web 2.0 experiences is the fact that Living Labs deal with real environments and mostly with real devices situated in a territory while Web 2.0 enjoys a complete environment of experiences.

However, the almost universal existence of devices such as mobile phones represents a clear opportunity for data collection in real scenarios. Another opportunity lies in the use of autocratic video and audio recording in ethnography, recording triggered by events. Also, technologies in video and audio conferencing or IM for interviews, and its transcription and tagging technologies will certainly evolve.

Nevertheless, methodologies in Living Labs are the best viewed as a mosaic set of techniques selected on the basis of experiment to validate actual needs, rather than a strict protocol. Undoubtedly, there is a clear need for automatic tools that could allow a foster set-up of experiments and direct feedback. Furthermore, there is also a clear need of an adoption of current methodologies to the needs of real life environments. These tools and techniques could not only substantially reduce the effort needed

to set up and carry out experiments, but could also provide benefits inherent to foster feedback and therefore faster cycles of experimentation.

4.2 Social Softwares for Innovation window

The use of Living Labs is a relatively new approach to the involvement of users in innovation and development processes (Schumacher & Niitamo, 2008). In the field of ICT development, Living Labs have been be defined as environments for innovation and development where users are exposed to new internet communications technology – ICT - solutions in (semi)-realistic contexts, as part of medium- or long-term studies (Følstad, 2008a). Consequently, Living Labs are of high relevance to e-Society innovation and development.

An current trend is to see the Living Lab as a way of tapping into the creative potential of users where users and user communities engage in co-creation activities, and new designs are returned on the basis of interchange between developers and users. With the increasingly participatory nature of the Internet – where users provide feedback, share, and co-create – *online applications for user involvement* are becoming ever more relevant to Living Lab innovation, including both what is typically referred to as social software (Shirky, 2003), social media (Boyd, 2009), or social technologies (Hagen & Robertson, 2010) as well as non- social applications for user feedback such as applications for online questionnaire surveys, cultural probing and experience sampling, and remote usability evaluation.

As we seen on Living Lab window, early work has been conducted on how online user involvement may be integrated in Living Lab innovation and development processes (Näkki & Antikainen, 2008; Følstad, 2008a; Følstad, 2009).

Further, Living Lab researchers need a framework on which to base future research on online applications for user involvement. Folstad et al (2012) propose an initial framework for classifying and understanding online applications for user involvement in Living Labs. The framework was intended to support Living Lab administrators to get an overview of application types and high level activities supported by such applications, as well as Living Lab researchers in their study of the performance and characteristics of such applications in varying Living Lab contexts.

According to (Folstad, 2012) "*ICT tools are making inroads in innovation as it becomes more collaborative by taking advantage of the increased connectivity of virtual environments and the capacity of integrating the mechanisms of collaboration in virtual platforms*".

These two elements materialize in different software platforms:

- Collaborative environments;
- Predictions markets.

Prediction Markets have been steadily increasing its popularity in the last years (LABORANOVA). Internet-based prediction markets have emerged as an approach to predict short and medium term market developments.

Background

The participatory nature of the internet has become increasingly visible during the last decade, in particular with the spread and uptake of services for user generated content and social networking. According to the traffic ranking service Alexa (http://alexa.com), five of the top ten trafficked web sites in the world, as of December 2013, were social media sites (Google, Facebook, YouTube, Baidu, Wikipedia).

Striking attributes of the participatory internet is the ease of connectivity and group formation (Shirky, 2009) and users' willingness to share openly and freely (Leadbeater, 2009), implying the internet to be a promising arena for user involvement in development and innovation processes. Indeed, within the general field of innovation management, innovating enterprises have already begun utilizing general purpose applications, such as blogs and social networks, as well as special purpose applications to involve users in innovation and development processes; examples of the latter being where users openly and collaboratively contribute and develop ideas for product and service innovation.

- My Starbucks Idea (http://mystarbucksidea.force.com/);
- Dell's IdeaStorm (http://www.ideastorm.com/);
- Lego (www.legomindstorms.com);
- Communispace (http://www.communispace.com/home.aspx).

4.2.1 Social softwares and innovation process

To understand the role of social software to the different cycles of the innovation process, the research used FormIT case study. FormIT was formulated by Bergvall-Kåreborn, Holst, and Ståhlbröst (2009) as a Living Lab innovation process particularly tailored for user involvement. This innovation process consists of three basic cycles (Ståhlbröst & Holst, 2012):

- concept design;
- prototype design;
- innovation design.

A. Concept design (Cycle 1): Idea portals

In recent years there has been a growth in solutions allowing users to contribute ideas or suggestions in idea portals. Initially, such solutions were seen only for specific brands – such as Dell's

IdeaStorm (http://ideastorm.com) and Starbuck's My Starbucks Idea (http://mystarbucksidea.com), both launched in 2007. Since then, customizable idea portals have been made available by UserVoice (http://uservoice.com), Get Satisfaction (http://getsatisfaction.com), and Induct software (http://inductsoftware.com), among others. These customizable idea portals are mainly promoted for involvement of brand or customer communities, in connection with a brand or enterprise web page, but may also be used for involvement of smaller groups of user representatives or stakeholders.

User participants in idea portals can usually read, comment on, and rate/vote for ideas that have been submitted – in addition to submitting ideas themselves. Though the ideas and comments contributed to idea portals often are openly accessible participants need to establish a profile and log on to comment or contribute ideas, which limits spam content. The idea portal administrator may update statuses on submitted ideas according to their status in the review and implementation process.

Idea portals may support concept design by involving users and stakeholders for idea generation and refinement. This may help the Living Lab administrators to a broader set of product or service ideas, increasing the range of opportunities identified in the ideation process. Furthermore, the Living Lab administrator may benefit from user discussions on strong and weak sides of the ideas, and get indications of their market.

B. Prototype design (Cycle 2): Feedback on early visualizations

General purpose online discussion forums, social networks and blogs have been used to share and discuss prototypes with peer designers, users, or stakeholders for a long time. However, the last few years special purpose internet solutions have appeared allowing efficient gathering of feedback on early visualizations.

In these solutions, the designer may publish visualizations of a concept or a prototype related to a specific innovation or development project, and then invite development team members, users, or stakeholders to review and comment. One of the most prominent social software solutions for feedback on early visualizations is Notable (http://notableapp), but others exist such as Notebox (http://noteboxapp.com) and Cage (http://cageapp.com).

The starting point for the design feedback in these tools is a visual presentation of the object of evaluation. Participants are invited to add design feedback by locating a marker on the visual presentation and enter a comment associated with this marker. In some tools, such as Notable, replies to existing comments are presented in a thread together with the parent comment, for structured discussions on each separate design issue.

Social software for feedback on early visualizations may be useful in for Living Lab administrators to gather feedback from users and stakeholders in a prototype design process. User feedback may be

useful to point out weaknesses in the current concept and prototypes but, more importantly, user feedback can serve as constructive input in this highly creative part of the innovation process (Følstad & Knutsen, 2010).

C. Innovation design (Cycle 3): Feedback on running solutions

A range of solutions exist for gathering user feedback on running websites on the form of questionnaires or forms for user reports, such as Kampyle (http://kampyle.com) and Feedbackify (http://feedbackify.com). Such solutions, however, often do not include social functionality and consequently do not benefit from having users participating as a group to reflect and build on each other's contributions.

Multiple cycles of the innovation process

Each of the above social software types are found to be particularly useful for a specific part of the FormIT innovation process. However, some solutions also may be useful across multiple cycles of the innovation process. This may be beneficial from a participant, client and administrator point of view, as it is only necessary to relate to one solution.

In particular, online content management systems with social functionality, may be adapted to support cocreation in Living Labs. Solution categories include blog platforms (such as WordPress), media platforms (such as VIMP), discussion thread solutions (such as Disqus), wiki solutions (such as Wikispaces) and social network platforms (such as Ning).

Due to the flexibility of available social content management system, these may be used to involve users for customer research, needs finding, ideation, co-design, feedback, and evaluation. For example, Reyes and Finken (2012) presented a study where Facebook was used to involve users and designers for a three week co-creation process in early-phase concept-design (see table 8).

Table 8 - Requirements for tools supporting co-creation in Living labs

Participant perspective	Administrator perspective	Client perspective
1. Easy signup	9. Easy set-up and piloting of studies	20. Varied degree of openness
2. Easy access	10. Easy recruitment of relevant users	21. Availability of data
3. One point of entry	11. Easy user management	
4. Clear communication of purpose	12. Easy real time overview of participant contributions	
5. Shared areas for communication	13. Easy participant follow-up	
6a. Easy to contribute	14. Editor rights	
6b. Motivating to contribute suggestions rather than problems or positive feedback	15. Easy real time analysis	
7a. Clear presentation of other participants contributions	16. Flexible export of data	
7b. Motivating to interact with others	17. Minimization of privacy issues	
8. Cross-platform	18. Flexible access control	
	19. Support for ethnographic	
	Analysis	

Source: Folstad et al, (2013)

4.2.2 Crossing ICT Tools for Living Labs, Innovation and Management

Has we describe on the innovation chapter; our conception of Innovation has changed, because the process by whom innovation unfolds has changed too. If we take a look at the great invention of the turn of the 19th century we can in most cases easily recognize the inventor and the company that promoted the invention, many times portrayed in quasi heroic terms. However if we perform the same process with the innovations that characterized the turn of the 20th century, like Internet, digitalization of music, mobile phones, web 2.0 and so on, it will be very difficult, if not impossible, to identify a single inventor or company responsible for its massive adoption. This simple exercise evidences not only the change that has taken place in innovation, but its dimension.

According to Aho (2006) "*Innovation can also be portrayed as a product of the confluence of three spaces. The first one corresponds to the technological capabilities of a given moment. A second one comprises the business models that enable instrument and capturing value from these possibilities. And a third one describing the societal value, hence consumer acceptance, of the product of the last two. The confluence of these three spaces will determine the value of a certain proposition*".

Maybe the most significant change occurred in the technology space. The widespread access to knowledge, fostered by globalization and the Internet made possible the existence of many expert groups and many experts in fields where before knowledge was largely centralized. In addition or as a consequence of that we have assisted to a remarkable amount of technological progress in almost all fields, where many technologies are now of multiple uses, producing as a result a huge increase in the

number of possible technical solutions that could result of their combination, as well as in management (Hamel, 2012).

The iPod is also a good example of user contributed contents (e.g. podcasts or videocasts) and product platform: iPod+iTunes ecosystem.In fact, in a report on the next business technology trends to watch (Manyika, Roberts, & Sprague, 2007) the first group of trends were devoted to managing relationships for innovation and advances in IT technology made possible to delegate substantial control to outsiders in the creation process. The report underlines four main trends:

- Distributing co-creation;
- Co-creating with partners;
- Outsourcing innovation and.
- Working together in networks.

If this approach to innovation it is now-a-days widely accepted, the impact on both company and societal structure is substantial.

The influence of the set of entities involved in the innovation process such as: customers, business parts, suppliers have to share their knowledge to create new or relevant knowledge. A possible integration among all the involved entities have to be supported by information and communication technology tools (ICT tools). These kinds of tools have the main objective to manage the knowledge for transforming the tacit knowledge to explicit knowledge to produce innovative solutions.

There are several models about innovation process that have been described (Wecht & Baloh, 2006), however the most approaches have defined three generic steps:

- the idea generation process where ideas are collected or generated;
- the ideas development;
- ideas evaluation where ideas become a valuable thing, transforming them into products.

An important approach described in (Wecht & Baloh, 2006), propose a three general segments to co-operate or integrate externals (see figure 42), they are condensed as follows:

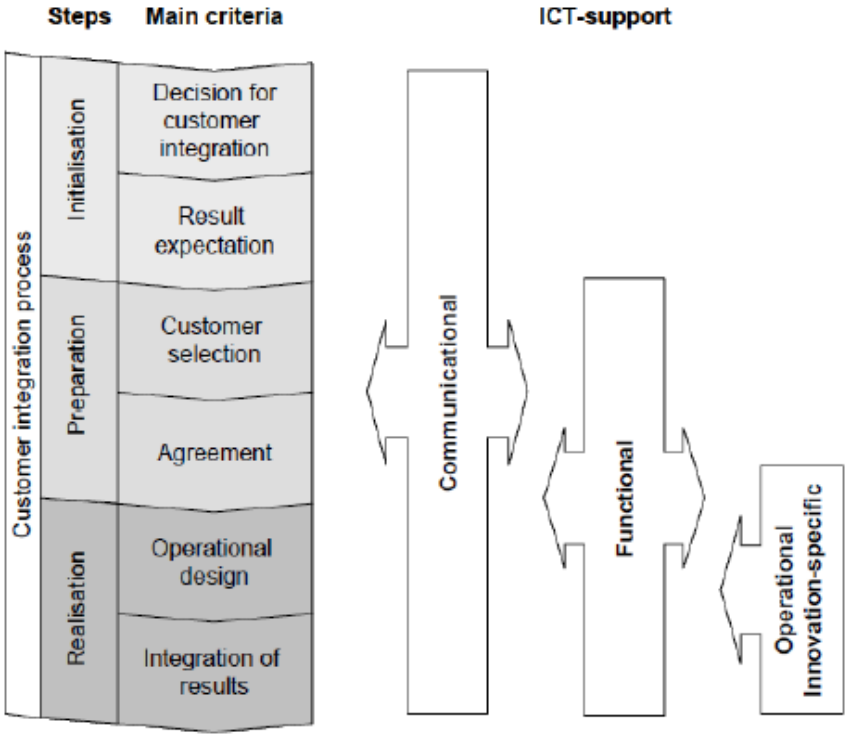
- **initialisation**: The initialisation focuses in to create a common strategy to create projects to be realized together organizations with externals.
- **preparation**: The preparation of external integration is aimed to search for potential partners; the selection and engagement of fitting customers are important factors to succeed.
- **Realisation**: the realisation of customer integration, this part start after fitting customer have been found and the general set-up has been clarified, then the selection of the right

persons and the distribution of the work load besides interaction and integration structure will produce a model to link innovation and knowledge.

In this approach have also been tackled the role of the ICT tools in the externals integration in three different fields:

- **Communication support**: it has to be used to interact and exchange information.
- **Functional support**: it has to ensure the openness to externals while at the same time restrict the access by maintaining the particularities of co-operation project.
- **Operation support**: innovation tools developed for certain customers tasks.

Figure 42 - Generic View on ICT-Support



Source: Wecht and Baloh (2006)

The customer integration in the innovation process can be beneficial to realize the needs of customers and how the needs can be satisfied. The organizational web-based tools can play a key role in the innovation process, since they provide a quick and easy access to distributed resources of knowledge and they also provide communication channels between the organizations and externals.

There are a group of variables and their relationships that can influence the choice of the technological and organizational tools (Corso et all, 2003):

- Contingencies: The contingencies are related with external factors which can influence the choice of technological tools for supporting a new product development;
- Knowledge Management Configurations KMC: The KMC tries to identify the factors that allow capture and consolidate knowledge for future retrievals;
- Knowledge Management Behaviours KMB: The choice of levers, according to contingencies, produces effects in terms of KMB; which are the combination of behaviours of individuals and groups concerning the creation, diffusion, consolidation and application of knowledge.

These behaviours tend to affect in some way the choice and use of ICT technologies and the tools selection (Corso et al, 2003).

It has been also described that there are two basic levers (Corso et all, 2003):

- the organizational: The organizational lever covers: communication tools, databases, people connections, interactions with suppliers;
- technological types: The technological levers covers the specific ICTs adopted in the new product development and tools for supporting integration among organizational units and external actors.

The main objective is to convert tacit knowledge to explicit knowledge. Both, Small and Medium enterprises just tend to place more emphasis on management of knowledge in tacit form (Corso, Martini, Pellegrini, & Paolucci, 2003).The Living Labs and companies, have to realize the importance of place emphasis on management of knowledge in explicit forms.

4.2.3 Crossing IT platform, living labs and participatory design.

Has presented in chapter 2, Participatory design – short: PD – puts the end-user into the centre of the design process. The method is used to gather innovative input from end-users. In today's world where big parts of economy and society depend on digital solutions the design of the according interfaces is also a democratic challenge (Wolkerstorfer et al, 2011). Where PD methods evolve (Beck, Obrist, Bernhaupt, & Tscheligi, 2008) we observe that tool and infrastructure support do not catch up: currently we see no framework to support end-user participation for innovative participatory methods. Hence every study setup is individual and consumes a lot of setup-resources. Wolkerstorfer et al (2011) took the steps to overcome this hurdle. They developed novel and more flexible techniques for collecting fast users feedback, in particular enabling the users to become creative and design scenarios for future products/services within a short time span.

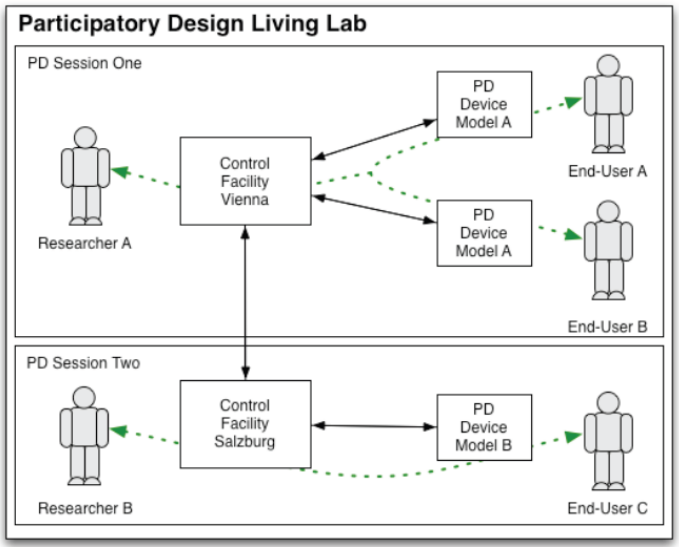
The solution that Wolkerstorfer et al (2011) propose "provides a set of generic methods and a completely digital infrastructure, which eliminates the drawbacks we experienced in our daily work".

The main drawbacks they experienced with existing solutions are:

- Test participants have to come to a certain location;
- The researcher must accompany test participants;
- Photographing or scanning must be done to transfer the scribbles;
- For every scribble there is the need for a “clean” foam board prototype (in this case it was done by erasing the surface; it was possible due to the fact that we covered the foam board prototype with a plastic skin an used a nonpermanent marker for scribbling);
- Participatory design with two users (e.g. who are in a communication process) is impossible;
- Incentives are handled manually;
- Limited number of participants;
- Geographic limitations.

Figure 43 shows the conceptual architecture of the Living Lab of Wolkerstorfer et al (2011). According to this model, researchers can run different PD sessions from interconnected control facilities.

Figure 43 - Participatory Design Living Lab Blueprint



Source: Wolkerstorfer et al (2011)

The Participatory design Living Lab will support User-Driven Innovation in the early stages of idea generation and overcome current limitations through:

- OTA (over the air) remote access to end-users with innovative potential including possibilities to remotely provide incentives for participation;
- URM (user relationship management) will enable researchers to select the 'right' people for the right job depending on specific usage criteria;

- Advanced methodology (including tools & infrastructures) for involving users in the ideation phase (quantitative and qualitative methods such as digital probing or ESM);
- Geographically dispersed testing facilities.

4.2.4 Folstad Framework Proposal

The use of Living Labs is gaining importance as an approach to involve users in innovation and development, serving to make users active participants in the development of e-Society. However, Living Labs are currently not taking full advantage of online applications to support user involvement, even though such applications are gaining impact in other innovation fields. To support the uptake and future development of online applications for user involvement in Living Labs, propose a framework that classify and relate such applications to the Living Lab context. The framework serves to classify types of online applications for user involvement, and the high level Living Lab activities which these may support. The application types are classified according to different phases of the innovation and development process. The high level activities include short term user campaigns and maintaining long term user relationships.

However, given the large number of existing Living Labs, it is surprising to find only these few reports of Living Lab studies with substantial utilization of applications for online user involvement (Følstad, 2008a).The framework was developed within the SociaLL project (http://sociall.origo.no) that runs from 2010-2012. As an introductory activity in the project, we saw the need to establish a framework to classify social software for co-creation purposes. In order not to be unnecessarily restrictive, and thereby possibly limiting the relevance of the framework, we scoped the process leading to the framework to include both social and non-social applications for online user involvement in innovation processes.

4.2.4.1 Objectives For The Framework

The modest attention given to applications for online user involvement in the Living Lab literature, as well as the rapidly evolving offer of such applications, indicate that we need to improve our understanding of the various types of applications for online user involvement as well as our understanding of how they can be used. The main objectives for the framework were:

- Identification of different types of applications for online user involvement in Living Labs;
- Identification of high level Living Lab activities to be supported by these application types;
- The framework should support discussions of issues such as how to integrate traditional and online approaches to user involvement in Living Labs, and trade-offs when choosing online applications for a given Living Lab purpose.

The framework was established through a collaborative identification and reflection process, with the active involvement of seven researchers in the SociaLL project.

The identification and reflection process was conducted in four steps:

- First, relevant applications were identified through a collaborative effort across eight weeks. Identified applications were presented to the researchers by adding comments to an open online discussion thread.
- Second, Følstad (2012) compiled the identified applications in tentative groupings.
- Third, each researcher familiarized herself with the applications they did not know from beforehand on basis of general descriptive material and demonstrations available on the web-pages of the application providers.
- Fourth, the researchers met in a face to face workshop presenting their individual perceptions of the applications and discussed their potential categorizations and Living Lab utilizations.

The workshop lasted four hours and was structured as a series of intervals of individual note taking and discussion. For each application, the researchers took individual notes on potential uses, strengths, and weaknesses. Following individual note taking, the researchers engaged in plenary discussions to reach a common understanding on potential uses, strengths, and weaknesses. Consequently, the plenary discussions returned:

- a refined set of application types;
- high level Living Lab activities to be supported by the application types;
- issues of concern when applying the framework.

A process-oriented classification of applications and application types were made during the first two steps of the collaborative identification and reflection process, and refined during the workshop. The innovation process phases are motivated from a classical sequential process model as described by Rothwell (1994).

Table 9 presents the identified application types as well as their mapping relative to innovation phases.

Table 9 - Types of online user involvement applications - Relevance to LL Innovation

Innovation process phase	Application types	Example applications
Analysis and inspiration	**Applications for cultural probing.** Inspirational material in the form of text, images or videos are collected from participants as responses to tasks. May include social functionality enabling participants to rate, prioritize, comment, and discussing each other's contributions.	Syncrowd (syncrowd.com), Piipl (piipl.net)

Ideation	**Idea capture and management.** Users are invited to contribute suggestions or ideas, typically as text and possibly an image. Participants are encouraged to rate and comment each other's contributions. Brand representatives may respond to contributions. Can be framed as general purpose idea portals (UserVoice and Get satisfaction), or as innovation challenges of limited scope (Induct software).	UserVoice (uservoice.com), Get satisfaction (getsatisfaction.com), Induct software (inductsoftware.com)
Early development	**Feedback on early visualizations.** Users are invited to contribute feedback on images/screen shots showing concepts, wireframes, or web pages lay out. Feedback is given as annotations or notes in the image, and may be contributed by user participants, clients and the design team.	Notable (notableapp.com), Notebox (noteboxapp.com)
Late development	**Feedback on running websites.** Users are invited to contribute feedback as comments in discussion treads located in panel adjacent to the website. Users can navigate in the website while having the commenting facility available. **Unmoderated usability evaluation.** Users are presented to the website and asked to do tasks, such as report on their understanding of the web page (Fivesecondtest), click on a particular location in the UI (Chalkmark), or use specific functionality and find specific content (Loop 11). Applications may include functionality for participants' reporting of task outcome or measurements for time spent on task.	Critique the site (critiquethesite.com) Fivesecondtest (fivesecondtest.com), Chalkmark (optimalworkshop.com), Loop 11 (loop11.com)
Multiple phases of the Innovation process	**Feedback management.** Users are involved as long term participants in innovation or development projects, to contribute feedback on ideas, concepts and designs at different levels of sophistication. **Questionnaire surveys.** Typically these applications allow qualitative and quantitative data collection from a large number of respondents. Participants may be presented to images and video in addition to text-based questions. Group interaction is typically not supported, even though exceptions exist. **Social content management.** Application categories include blog platforms (such as WordPress), media platforms (such as VIMP), discussion thread solutions (Disqus), wiki services (such as Wikispaces) and social network platforms (such as Ning). Users may contribute by commenting, rating others, uploading images or videos, writing posts, or adding to content provided by others. Due to their general purpose character, applications for social content management may support co-creation in all phases of the innovation or development process.	Revelation (revelationglobal.com) Survey Monkey (surveymonkey.com) Polldaddy (polldaddy.com), WordPress (wordpress.com) VIMP (vimp.com) Disqus (disqus.com) Wikispaces (wikispaces.com) Ning (ning.com)

Source: Følstad et al (2012)

Two high-level Living Lab activities, relevant across multiple process phases and supported by different types of online applications. These are summarized below:

- Short term campaigns are characterized as activities aimed at getting user input in a particular innovation phase, for example a cultural probing or an ideation activity. Such activities typically involve a large number of participants, and may share characteristics with a crowdsourcing (Brabham, 2008) approach to innovation.

Large numbers of participants are held to improve the chances of getting valuable input. Also, large numbers of participants may improve the reliability and validity of findings, for example when using online applications for user feedback or remote usability testing.

Short term campaigns allow for the involvement of also moderately motivated participants. The duration of user participation is to be short and the level of participant commitment may be low. Applications for cultural probing, idea capturing and management, and questionnaire surveys are assumed to be particularly suitable for short term campaigns. The following characteristics were seen as particularly important:

- Easy access;
- Simple interaction;
- Simple setup;
- Maintaining long term relationships.

Maintaining long term relationships in many ways hold the opposite characteristics of short term campaigns. Living Lab studies often aim at involving a group of users across a longer period of time. In such studies, the users may participate in both traditional face to face user involvement activities as well as online participation; however, the applications to online user participation need to support a deep involvement and engagement in the user group. The number of users involved in long term relationship studies is typically low compared to that of short term campaigns. Also, the participating users need to be highly motivated.

- Long term relationship studies allow for in-depth knowledge of the users and their experiences, and may be part of an ethnographically oriented (Hoving, 2003) or social construction approach (Pierson & Lievens, 2005) to innovation. Applications for feedback management and social content management were considered as particularly suited for supporting long term relationship building, but it was also considered that some applications for idea capturing and management could be used to support long term relationships. In particular, the following may be key criteria for supporting long term relationships in a Living Lab context:
- Participation through user profile;

- Interaction with participants;
- Management of activities.

4.2.4.2 Integrating online and traditional practices

On basis of the identified framework, reflections were made on how to successfully integrate online and traditional practices. In particular, the following is judged to be important: Clarity of purpose, needed resources, and relationship between online and face-to-face activities (Folstad, 2012).

- **Clarity of purpose:** As seen from the previous sections, applications for user participation may be used for a range of activities spanning the entire innovation process. In consequence, it will be critical for Living Labs taking up such applications to establish a clear understanding of the particular Living Labs activities they aim the applications to serve. Some applications are more flexible than others, but no current applications were found to cover the entire spectrum of possible activities. As Living Lab administrator, it may in the long run be useful to look for a set of applications to match your varying needs rather than trying to identify one multipurpose application. Living Lab researchers comparing applications between cases need to be aware that the performance of a given applications will depend on the match between the application and the activities it is assumed to support in the given Living lab context.
- **Needed resources:** User participation may be resource demanding with respect to study moderation; in particular when using social rather than individual applications. In order to be active and creative, participant engaged through social software will typically need feedback to stay motivated. In particular in early phases of studies involving social applications, it will be important to facilitate participant activity by responding to participant input and support discussions and exchanges between participants.
- **The relationship between online and face-to-face activities:** Online applications for user participation may be seen as a vehicle for communication between participants of face-to-face activities when they are not together; in this respect serving as an augmentation of the participation already conducted by traditional methods. This is particularly so for social applications. However, there is no guarantee that the social applications will have this effect. First, the participants of face-to-face activities are likely to be few in numbers making it difficult to get the social exchange started in the online applications. Second, these participants may already be satisfied with the contributions they have made face to face and therefore be less motivated to participate online. In consequence, Living Lab administrators should consider whether it may be useful to

involve other and/or larger numbers of participants in online and face-to-face activities in order to improve the chances for successful user participation through the online application.

As is evident from the framework and the discussions above, choosing online applications for user participation imply trade-offs. The is not unique for this kind of applications; reaching a design application will always involve judgments on opposing forces (Van Duyne, Landay & Hong, 2007). The following trade-offs were addressed during the collaboration and reflection process.

- **Targeted vs. flexible:** Some of the discussed applications are highly targeted, others may serve multiple purposes. Highly targeted applications, such as some of the applications for idea capture and management, include only the minimum of functionality needed to fulfill their purpose. Flexible applications, such as applications for feedback management, include a broader spectrum of functionality and may to a greater degree be configured to meet individual Living Lab requirements and to support multiple Living Lab activities, which in turn may reduce participant and administrator overhead as they do not have to learn to use several applications. The adaptability of a flexible application, however, comes with the price of increased implementation overhead. Also, a targeted application may be able to serve the one particular activity which it is designed for better than a flexible application.
- **Deep involvement vs. short term participation:** The two key Living Lab activities to be supported by online applications for user participation were held to be short term campaigns and long term relationship. The distinction between these two purposes implies important choices that are to be made with respect to whether the applications should support deep involvement or short term participation. Short term participation require easy access and simple interaction for participants, whereas long term relationship require the establishment of user profiles, rich functionality for interaction between study participants and support for managing user activities. The differences in requirements between applications for deep involvement and applications for short term participations imply that this trade-off should be critical for choice of application for a particular high-level activity.
- **Application as service vs. software on premises:** A final trade-off to be mentioned is relating to the hosting of the application. Typically, applications for online user participation are set up as services, rather than software to run on a server controlled by the Living Lab; however, exceptions to the rule exist – such as general purpose

applications for social content management such as blogs (i.a. WordPress) and media sharing (i.a. OS Tube). Applications as services will typically be easier to set up and configure. At the same time, the study administrator needs to rely on a third party for control of the user data which may compromise privacy regulations or client requirements. Also, applications as services may not be as configurable as software to be implemented on premises, limiting the administrators' possibilities to adapt to a given study context.

4.3 Users Motivation in innovation communities Window

Recruiting and maintaining such user communities is, highly challenging. For example, current LL and ICT tools methodologies largely depend on user participation in activities conducted face-to-face, which poses important limitations related to cost, time, and sample size restrictions.

A way to enable individuals scattered all over the planet to actively participate to Living Lab activities is by using social software. It enables geographically dispersed user groups to connect and share insights, knowledge and content over the Internet, which eventually may increase the commercial value and uptake of Living Lab methodology, in particular in small and medium sized enterprises.

However, even if social software is a powerful tool for user involvement, important unresolved challenges hinder the effective use of social software in innovation challenges or in Living Labs. As a result, it can be difficult to implement methods and tools that actually create engagement and commitment to the process for those involved.

Firstly, the mobility of social software users suggests that recruitment and maintenance of user communities is highly challenging, and there is not sufficient knowledge today with respect to motivating factors in online groups. Volunteer activity in fields like the free software movement and online encyclopaedias suggests that users may be motivated also by intrinsic rewards, while experiences from public opinion polling and marketing research suggest beneficial effects of external rewards. Also, little is known about the criteria against which to select the users likely to be most useful for Living Lab co-creation.

According to Ståhlbröst et all (2011), "*we can see a rapid growth today of technologies supporting user interaction on the internet, such as social networking sites and other virtual communities*".

These communication tools offer people new and varied ways to communicate and influence both through their PC and their mobile phone. This offers a wealth of possibilities for companies that want to involve users in their innovation processes. In these virtual communities, users both produce and consume information in a voluntary and democratic manner, which makes it possible for strangers to get aid in problem solving activities (Lampel & Bhalla, 2007). These communities also are shown to be of

great value, as they produce products and services which can compete with manufactured products; hence, the communities not only exist, they also triumph (von Hippel, 2001).

The aim of this topic is to provide a theoretical foundation that contributes to the identified challenges regarding users sellection and recruitment procedures within Living Labs innovation processes[3] (Antikainen, 2010).

Thereafter, our literature review is summarised into three themes:

- user motivation;
- user recruitment;
- user characteristics.

Here, the focus is to understand what motivates users in general, hence we searched for motivation literature within the area of psychology which is described in motivating users section.

The challenges related to sellection and recruitment activities can be divided in two main groups:

- The mobility of social software users, suggest that recruitment and maintenance of Living Lab user communities is highly challenging. In particular,currently there is not have sufficient knowledge with respect to efficient motivation of user participants. User participation and volunteer activity in fields like the free software movement and online encyclopedias, suggest that user engagement may be motivated also by intrinsic rewards. At the same time, experiences from public opinion polling suggest beneficial effects of external rewards.
- The actual recruiting of participants. It is known from existing user innovation theory (von Hippel, 2005), that users contribute differently to innovation processes. We do not, however, at present know the criteria against which to select the users likely to be most useful for Living Lab co-creation.

Subchallenges found include:

- Knowledge on user engagement and activity through (a) extrinsic motivation, such as reward schemes, and (b) intrinsic motivations, where the Living Lab participation is perceived as meaningful and rewarding in itself;
- Efficient establishment of user communities cases;
- Selection criteria for recruiting user participants particularly useful to the innovation process.

[3] Antikainen,M., Mäkipää, M.and Ahonen, M.(2010). Motivating and supporting collaboration in open innovation. European Journal of Innovation Management, Vol.13, No. 1, pp.100--- 119.

4.3.1 Types of innovation communities

Has we seen on the last chapter, a vast flora of innovation communities is available on the internet. Some of them are focusing on supporting open source development projects, while others are more focused on involving users in developing a specific brand's products. Hence, these different types of innovation communities can be clustered in many different ways; Ståhlbröst et al, (2011), have chosen to cluster them into five different types according to users' activities in the communities and its scope. These five types are:

- brand communities (focus on users input to developing a specific company's product portfolio);
- beta-test communities (focus on user tests of prototypes);
- user content communities (focus on users contributing with content to innovative solutions);
- development communities (focus on users developing products and services);
- innovation intermediary communities (focus on supporting innovation interactions between users and organisations).

According to Lampel and Bhalla (2007), much of the research concerning virtual communities has been focused on exploring the contrast between online communities and their real-world counterparts. In addition, much research has focused on understanding the drivers behind social interaction in these communities (Hars & Ou, 2002; Wasko & Faraj, 2000; Franke & Hippel, 2003). While these drivers are important to understand, they leave open the question of the nature of the users contributing to online innovation communities and how important certain motivators are for users' willingness to participate in these innovation communities' activities.

Applying an open user innovation community approach makes it possible for organisations to gain from encouraging their users to interact with each other as well as with the organisation. To facilitate user interaction, organisations are starting to view user innovation communities as strategic assets that give them access to external expertise, new ideas on innovation and support in the innovation development process (Desouza, et al., 2008). For organisations that utilise user innovation communities, values such as an increase of their capacity to continuously update their competencies and adjust better towards the changing business environment has been identified (Di Gangi & Wasko, 2009).

4.3.2 User characteristics, motivation in general and incentives to maintain user communities

User characteristics

How users use and communicate when they use social media is also influenced by their personality. One way of categorizing personality is in the context of Five- Factor Model. This model separated personalities into five dimensions (Ross, Orr, Sisic, Arseneault, Simmering, & Orr, 2009).:

- *Neuroticism* which reflects a person's tendency to experience psychological distress and high levels of the trait are associated with a sensitivity to threat;
- *Extraversion* which represents a persons tendency to be sociable and able to experience positive emotions;
- *Openness to Experience*, represented an individual's willingness to experiment with different approaches, be intellectually curios and enjoy artistic pursuits;
- *Agreeableness*, is another aspect of interpersonal behavior reflecting a tendency to be trusting, sympathetic and cooperative, and
- *Conscientiousness*, reflects the degree to which an individual is organized, diligent and scrupulous.

These personality characteristics predicts general on-line behavior but is have also been found to be associated with IT communication activities. For example, those who are high in the Neuroticism characteristic are likely to use Internet to avoid loneliness (Ross, et al , 2009).

Also people with extrovert characteristics tend to take part in groups in, for example Facebook, hence they might use Facebook as a social tool. Studies have identified that three of these characteristics are central to social media use. These are Extraversion, neuroticism and openness to experience (Correa, Hinsley, & de Zúñiga, 2010). More specifically, extrovert people, rather than introvert, tend to engage in social media use. Emotional stability is negatively related to social media use, that means that people with a high level of neuroticism are more likely to engage in these social activities. In addition, a positive relation between openness to experience and social media has been found but this finding is also related to age where younger people are more likely to use the media (Correa, Hinsley, & de Zúñiga, 2010).

When people have decided to use social media their different networking types can be categorised into groups (Ofcom, 2008). These groups are:

- Alpha socialisers – people who used sites in intense short bursts to flirt, meet new people, and be entertained;
- Attention seekers – people who craved attention and comments from others, often by posting photos and customizing their profiles;
- Followers – people who joined sites to keep up with what their peers were doing;
- Faithfuls – people who typically used social networking sites to rekindle old friendships, often from school or university;
- Functionals – people who tended to be single-mined in using sites for a particular purpose.

Non-users also appear to fall into distinct groups based on their reasoning for not using social networking sites. The reasons why these people do use social networking sites (Ofcom, 2008):

- Concerned about safety – people concerned about safety online, particularly of making personal data available on the internet;
- Technically inexperienced – people who lack confidence in using the internet and computers;
- Intellectual rejecters – people who have no interest in social networking and view them as a waste of time;
- Another way to cluster users of ICT-tools are in:
- Digital natives - Digital Natives are those users who “speak” the digital language of computer, video games and the Internet. Digital Natives are used to receiving information fast and they like parallel processes and are multitasking. These users prefer graphics before text and they function best while networked.
- Digital immigrants (Prensky, 2001) - As digital immigrant it is possible to adapt to the environment, but they always retain some kind of accent. Typical behaviors of digital immigrants are the printing of e-mail or searching the Internet for information second.

Due to the diversity of innovation communities, it can be suspected that users’ motivations for contributing and participating in these communities differ depending on which type of community they are engaged in (see Table 10).

Table 10 - Motivation and Community Types

Type of Community	Motivator	Authors
Brand community	Interest in innovation activities	Füller et al. (2008)
	Creative personality	Füller et al. (2008)
	Wish to be recognized by the firm	Jeppesen and Frederiksen (2006)
Developer community	Reputation building/recognition for contribution	Casalo (2009)
	Satisfaction of members needs and interest	
	Reciprocity, altruism	Casalo (2009)
	Expected future rewards, benefits exceeds costs	Wasko and Faraj (2000) and Hars and Ou (2002)
	Knowledge exchange and learning	Franke and Hippel (2003) and Hars and Ou, 2002)
	Developer community	Wasko and Faraj (2000) and Hars and Ou (2002)
Beta-test community	Altruism	Peltola (2008)
	Curiosity	Peltola (2008)
	Making a difference	Peltola (2008)
	Being a forerunner	Peltola (2008)
	Satisfying a specific need	Peltola (2008)
User content	Enjoyment and fun	Nov (2007)
	Status seeking	Lampel and Bhalla (2007)
	Altruism	Lampel and Bhalla (2007)
	Reciprocity	Lampel and Bhalla (2007)
Innovation intermediary	Monetary rewards	Antikainen and Väätäjä (2008)
	Recognitions for ideas	

Source: Ståhlbröst et all (2011)

In this table, the authors have summarised different motivators related to a specific type of community. It is noticeable that users' motivation differs between innovation community type. For instance, in brand communities, users are motivated to participate by a wish to get recognised by the firm. In addition, in both developer communities and user content communities, users are motivated by status seeking, reciprocity and altruism, while this is not as obvious in brand communities and innovation intermediary communities. Our study, which is rather limited in scope; should be considered as one step towards an understanding of users' motivation in relation to different innovation communities. In our review we have found that many studies are focused on open source communities, with one plausible reason for this perhaps being that this type of communities has existed for several years with good results. There is

thus a need for more studies focusing on user motivation in other types of emerging innovation communities.

According to Ståhlbröst et all (2011), important findings emerge from the Botnia Living Lab[4] regarding the users, community use characteristics, internet and social media usage, technology adoption type and motivational factors (Ståhlbröst et all, 2011).

The users' technology adoption type:

- Innovator: A soon as I, or others in my surrounding, have a need of a new technological application or service, I develop it myself.
- Visionary: I often have ideas for, or discover that I have a need for, a new product and service before they are available at the market.
- Technology enthusiast: As soon as a new product or service is available at the market, I want to start using it.
- Utility users: When I realise that a new technical product or service is useful via a few people in my surrounding who use it, I also start to use it.
- Technology conservative: When a new technical product or service has been available at the market for a long period of time and most people in my surrounding use it, I usually start using it.
- Technology sceptical: I am sceptic towards new technology and it often takes a long time before I start using new technological products or services.

According to Ståhlbröst et all (2011), six motivators stand out as most important for user's when asked about motivatations to participate in innovation processes. These motivators are:

- learn something new,
- stimulate curiosity,
- testing innovative products and services,
- testing products and services that are new to the user,
- having a possibility to win something,
- getting to know new people, feel a social belonging, winning something and sharing experience with others.

In short, Ståhlbröst et all (2011), have identified two aspects which influence users' motivation from an overarching perspective. These aspects are type of innovation community and the users' technology adoption type. Different communities fulfil different goals for diverse types of users; hence, they have

[4] Botnia Living Lab:

different expectations, engagement and intentions with their participation in different communities. Thus, to fully harvest the potential of a community, it is important to understand what is important for the users in that specific context and make sure that this is fulfilled.

User motivation in general

When it comes to users and their motivation to participate and contribute to these communities, the basic principle is that motivation is based on the goals, or ends, that people try to reach with their current activity. The idea with end motives has a long tradition and goes back to Aristotle, who divided motives into ends and means (Reiss, 2000). An end motive is something people enjoy for their own sake, whereas the means are the methods or tools that are used to satisfy the end motives. This implies that means are the steps that are taken on the way to fulfil an end motive. The number of means that can be used to reach the end motive is limited only by fantasy, while the end motives are genetically limited (Reiss, 2001). The satisfaction of an end motive gives rise to a specific feeling of joy, but soon after an end motive has been satisfied, the feeling of joy dissipates and the desire to fulfil it reasserts itself (Reiss, 2004) (Reiss, 2005).

One common approach when it comes to motivation is to make a distinction between intrinsic and extrinsic motivation (Leimeister, Huber, Bretschneider, & Helmut, 2009). Intrinsic motivation occurs when an individual engages in an activity, such as a hobby, that is initiated without obvious external incentives. This type of motivation refers to the desire to feel competent and self-determined. External motivation is activated by external incentives, such as direct or indirect monetary compensation, or recognition by others (Hars & Ou, 2002). Both these motivational factors might be of importance to the user's decision to take part in the innovation community's activities. For example, some users might be motivated by the competitive factors if the community arrange an idea competition, while other users might be externally motivated by the possibility to win a prize of monetary value, or being intrinsically motivated by the opportunity to have fun while competing (Leimeister, Huber, Bretschneider, & Helmut, 2009).

User motivation in innovation communities

Understanding what motivates users to contribute to, and participate in innovation communities is however not enough to ensure their commitment to innovation activities. It is also important to know how to recruit users and how to maintain their interest to participate in user communities. The advent of internet-based user communities has contributed to a situation where more and more users are interested to contribute to innovation processes. Free revealing of innovations has been described as a basic characteristic of these processes, and innovation processes have become more open for user involvement. Due to the wide spread of on-line communities it is of increasing importance to strengthen

the relationship between firms and user. Firms now seek to actively build user communities or to build linkages to existing ones. The purpose of such interactions is not always clear, but motives like improving engineering efficiency and innovation output as well as recruiting may play an important role (Schmidt, 2006). Furthermore, some companies have started to view communities as a vehicle of enhancing customer loyalty (Harhoff & Mayrhofer, 2008).

Instead, communities are taken to be exogenously existent. That assumption assures that one crucial aspect is neglected by design – the fact that users are heterogeneous, that they self-select into communities of like-minded and (along certain dimensions) relatively similar individuals, and that this self-selection process generates user communities with very different properties, capabilities and cultures. In Living Lab activities, users can be both self-selected and recruited to take part in the innovation activities. In this report, we will briefly describe the task of recruiting users.

When it comes to recruiting users in participatory activities, there is one ground rule and that is to involve users that represent the actual end-use as good as possible. This is something that needs to be considered when user from a specific group of the society are involved (Nielsen, 1993).

To select people that are suited for involvement activities, such as for example tests there are many factors to consider. Gulliksen and Göransson (2002) has developed a number of guidelines for selecting users to ensure that they are as representative as possible:

- Strive to maximize the difference between different categories of users;
- Involve users who are flexible and willing to change and who has a strong social competence. One single sabotour can destroy a development project completely;
- The participation must be voluntary;
- Strive for a distribution among gender under the circumstances that the distribution occurs in the user group. Traditionally it has shown that male participants has lead to a development more focused on technical performance, while female participation has lead to a development more focused on human needs;
- To maximize the difference among the use categories, all kind of ages needs to be represented;
- Focus in the selection should be on the users who are the least knowledgeable about the area.

When it comes to recruiting users to participate in innovation communities there are other aspects that needs to be considered to encourage the users to contribute on a long-term basis. To encourage users to participate in a community and the user involvement activities it is important that the mission of the community is stated and communicated clearly to its potential users. As the users have gained interest in the community it is important to create excitement about the community. The people engaged should

long for being part of the community. Important to note here is not to promise something that do not exist since this will be apparent for the users and hence, the trust for the community can be damaged. To attract the users to the community it is important to create an interesting website with autor?:

- Great overview.
- Great documentation, prioritize how to become a customer.
- Great communication, prioritize contact details.
- Build conversation; provides regular content and engagement.

Incentives to maintain user communities

Contributing to innovation activities reflects a conscious strategic decision by consumers to become involved in innovation activities. In order to understand how to engage users in these co-creative activities it is important to understand the mechanisms behind their behaviour and how incentives can be used to stimulate users to participate and contribute, such as (Etgar, 2009):

- If users are involved based on economic needs, incentives to maintain their engagement can be monetary rewards in terms of direct compensation, price reductions, cost transfer from money to time and efforts. They could also be motivated by achieving a greater personalisation of products and services, hence they can reduce the risk of buying unsuitable products and get products that suits their specific needs which might lead to a sense of efficacy.
- If the users are involved based on psychological needs. These users can be motivated to participate based on a desire to be involved in meaningful activities and to be involved in creative activities. These users might also be motivated by a possibility to exhibit their creative side and fulfil their need to play. Other things that might motivate these people is to give them the possibility to express themselves, they can feel important and it has similarities to hobbies and free time activities (life-style).
- If people that are motivated by social factors. These people can be motivated to participate in innovation activities if they feel that they can become part of social networks related to a particular subject. Being part of a social network makes it possible for the users to overcome loneliness and thus, give a sense of belonging. In these networks, these users can share common experiences and they can also get high social status by belonging to a specific social network.

When it comes to user motivation related to innovation communities in particular, von Hippel (2001) (von Hippel, 2001) found that innovations communities are most likely to flourish when three conditions are met:

- some users have sufficient incentives to innovate,
- some users have incentives to voluntarily reveal their innovation,
- user-driven diffusion of innovation can compete with commercial products,

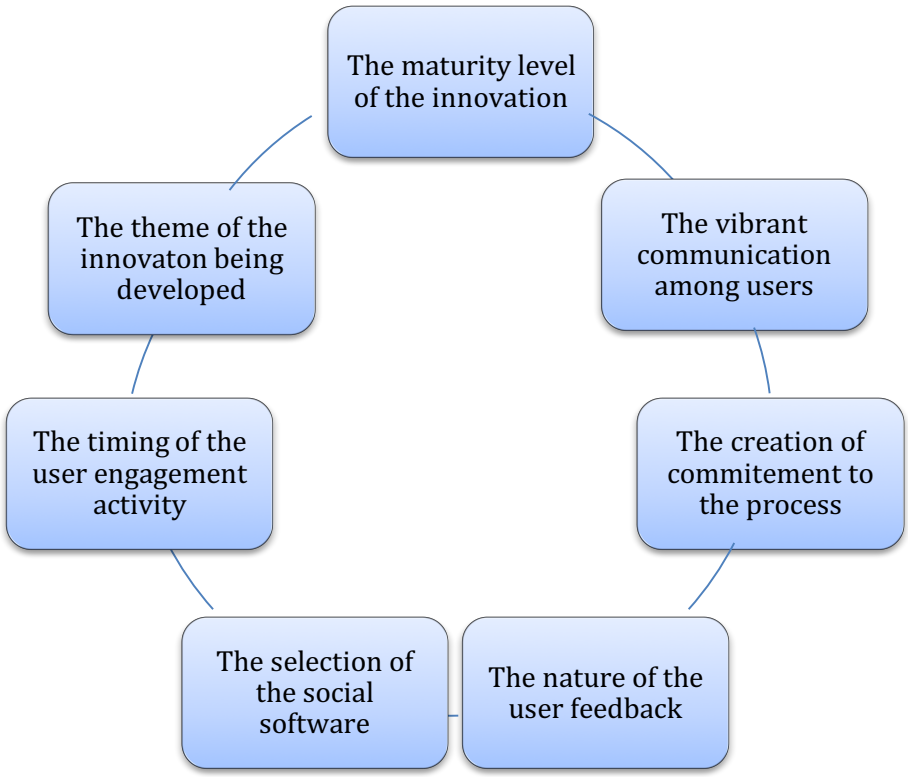
This refers to user innovation communities in general which means that these communities can either be supported by IT tools or mainly focus on face-to-face meetings. It is argued that the same motivation takes different shape in online communities because it is articulated under different conditions (Lampel & Bhalla, 2007).

Hence, it is interesting to gain insights about what motivates users in online communities in particular. Related to that, Antikainen et al. (2010) have performed a literature study about what motivates user to participate in online communities in general. Their study revealed 16 motivating factors: *altruism, care for the community, enjoyment, firm recognition, friendship, ideology, interesting objectives and intellectual stimulations, knowledge exchange, monetary rewards, need, peer recognition, reciprocity, recreation, reputation, sense of efficacy, and a sense of obligation to contribute* Antikainen et al. (2010). These factors are important to consider, but they do not distinguish what motivates users in a particular type of community nor do they focus on innovation communities in particular.

4.3.3 Framework from user commitment

Bertoni et all (2013), identified seven main aspects (or challenges) that need to be handled to commit users by means of social media, in a Living Lab context (see figure 44):

Figure 44 - The Seven Challenges for User Commitment



Source: Bertoni et al (2012)

- *The selection of the social software* - The first challenge is related to the selection of the social software, which encompasses the social media as such, and the nature of the community using a specific social media. Related to the social software is the familiarity, suitability, personalization and user friendliness of it. Related to the nature of the community is the establishment of it, the amount of users it can offer, the interest and knowledge of the community and the users commitment to it.
- *The timing of the user engagement activity* **-** The second challenge relates to the timing of the user engagement activity. In the student's projects (Ståhlbröst, 2012) it was difficult to engage users even though the students tried to engage people that are usually involved in design activities, since they could be expected to be interested in giving feedback to a design mock-up.
- *The theme of the innovation being developed* **-** The third challenge concerns the theme of the innovation being developed. Related to this, the students experienced that the scope of the SATIN platform was not experienced as an engaging topic among the users the students involved in their study (Ståhlbröst, 2012).

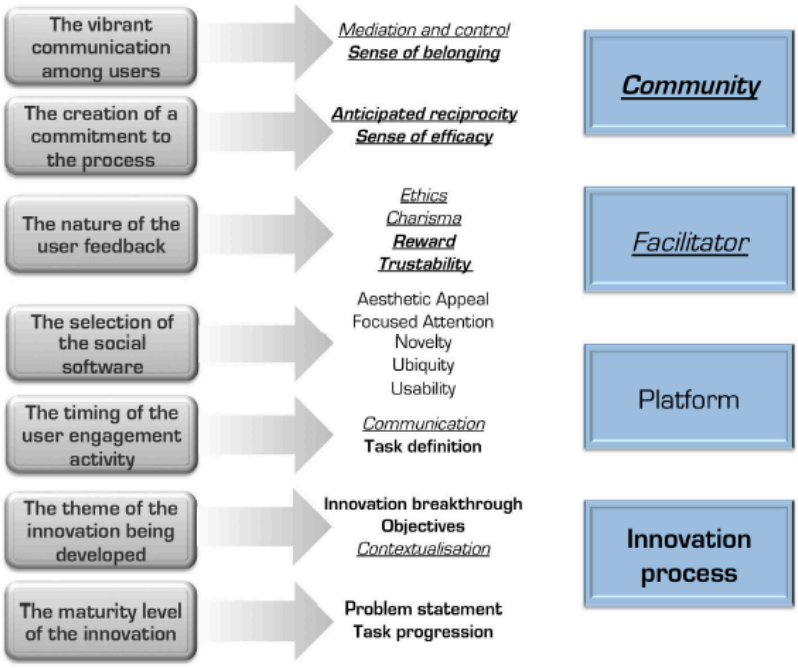
- *The maturity level of the innovation* **–** The maturity level of the innovation being tested is another aspect that needs to be considered.
- *The vibrant communication among users* – The fifth challenge concerns the ability to establish a vibrant communication among the users, which is to have open discussions and to stimulate communication among the people being involved in the innovation process (Ebbesson & Svensson, 2012).
- *The creation of a committment to the process* - The sixth challenge is to create a commitment to the process. In the cases this was the most demanding and challenging task. To create commitment in the process, it is then crucial to identify and invite the right group of users since the beginning of the project.
- *The nature of the user feedback* – The seventh challenge relates to the nature of user feedback. Here it is important to analyse and interpret what the users are saying, because it has shown to be of various natures and quality. This needs to be considered when involving users and strategies for how to handle the users feedback might be important to decide, especially if the amount of user feedback increases in the innovation process.

4.3.4 Crossing user motivation, online platform, social media and innovation communities

On the basis of the theoretical findings from Sociall research[5], Bertoni et al (2013), propose the following framework describing how social media can be used to recruit and maintain user communities, from the initial stages enhacing the sense of beloging and developing trust and reward feeling to the last stages by seeking and sharing innovation objectives and problem statement. (see Figure 45).

[5] Record LL was run in 9 Scandinavian countries

Figure 45 - From the Seven Challenges to the Commitment Framework

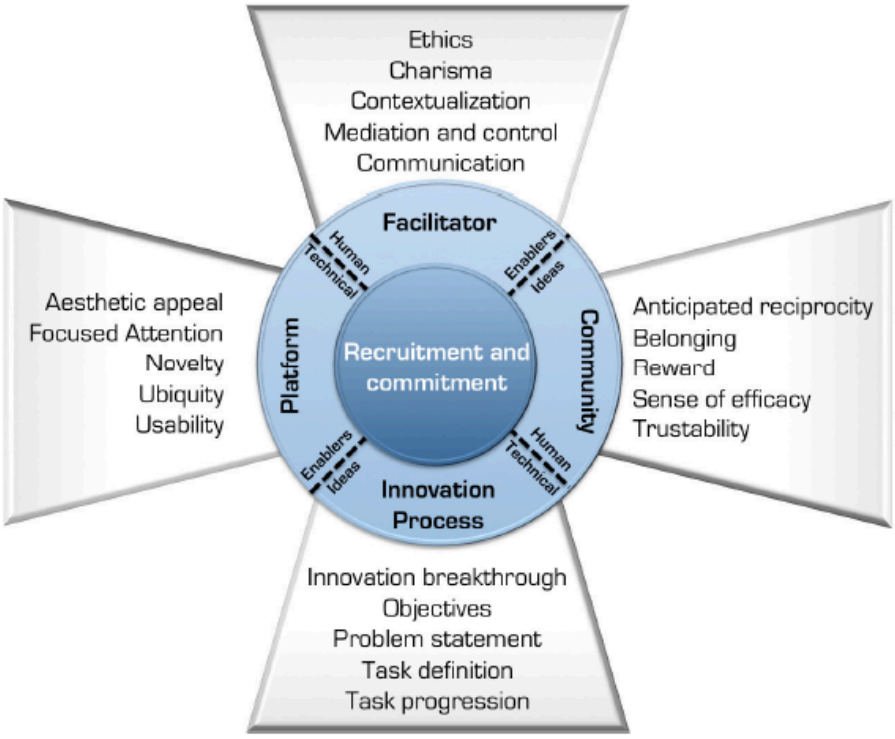


Source: Bertoni et al (2013)

The figure 46 describe in detail the topics that build the framework for recruiting and maintaining a user-driven innovation community in Living Lab context, highlighting the role of both human and technical elements to foster motivation and engagement in online communities. At the same time, motivation and commitment are fostered by the capability to communicate ideas, by the means of ad hoc enablers.

At the intersection of such dimensions, it is possible to identify four main aspects that determine motivation and recruitment of online communities. These are: Community, Design, Platform, and Facilitator.

Figure 46 - Framework for User Motivation



Source: Bertoni et al (2013)

The analysis of Bertoni et al (2013), allowed us create a synthesis regarding the motivations focus connected with the model dimensions. The authors based their dimensions in previous research, such as In their study O'Brian and Toms (2008) found that, where the subjective characteristics of an interactive experience are defined, it is possible to identify a set of attributes of user engagement. User engagement has different meanings in different application domains and for different demographic groups, because of different user priorities (Attfield, Kazai, Lalmas, & Piwowarski, 2011). Engagement during instant messaging, for instance, differs from news portals. Whereas fun may be crucial for engaging children, ease of navigation may be a higher priority for adults (see table 12). The six engagement dimensions proposed by O´Brien et al. (2010) – Focused Attention, Perceived Usability, Aesthetics, Endurability, Novelty, and Felt Involvement – have been re-elaborated spotlighting the role of the social media platform within innovation communities and LL, reducing them from 6 to 5.

The following table 11, show us the motivations drivers and links.

Table 11 - Motivations / Dimensions resume

Dimension	Motivation links to:
Anticipated reciprocity	…the expectation that one will receive useful help and information in return.
Belonging	…the need of belonging to a community.
Reward	…the desire to gain personal and financial benefits
Sense of efficacy	…the ability of being able to influence others, and eventually the outcome of the process.
Trustability	…the desire to give or receive help from trustable people.
Innovation breakthrough	…the opportunity to contribute to a radical change.
Objectives	… the ability of describing the overall objective of the innovation initiative in a clear, reasonable and realistic way.
Problem statement	… the ability of providing sufficient knowledge about the problem, its significance and value.
Tasks definition	…the ability of breaking down the objectives into manageable tasks.
Task progression	…the ability of displaying the progresses in the development and results of the product or service being designed
Aesthetic Appeal	…the visual appearance of the innovation platform interface
Focused Attention	…the ability to stimulate focused concentration, absorption, and temporal dissociation in the task.
Novelty	…the curiosity evoked by the system and its contents.
Ubiquity	...the ability to connect with the community from a mobile device.
Usability	…the ability to reduce the users' affective and cognitive responses to the system.
Ethics	…the ability to ensure the users that the information acquired will not be misused.
Charisma	…the ability to communicate knowledge ability, reputation and trust to the members of the community.
Contextualization	…the ability to create scenarios for the participants to relate their contributions to.
Mediation and control	…the ability to balance contributions from dominant and quiet users, as well as to resolve conflicts.
Communication	…the ability to boost discussion with the correct timing.

Source: Bertoni et al (2013)

Table 12 - Factors of Engagement and their definitions

Factor	Definition
Aesthetic Appeal	The users' perception of the visual appearance of a computer application interface
Endurability	Users' overall evaluation of the experience, its perceived success and whether users would recommend the e-shopping site to others. This factor combines concepts related to users' likelihood to return (Webster & Ahuja, Enhancing the design of web navigation systems: The influence of user disorientation on engagement and performance, 2006) and evaluation of system success (DeLone & McLean, 2003)
Felt Involvement	Users' feelings of being drawn in, interested, and having fun during the interaction
Focused Attention	The concentration of mental activity (Matlin, 1994); contained some elements of Flow, specifically focused concentration, absorption, and temporal dissociation (Csikszentmihalyi, 1990)
Novelty	Users' level of interest in the task and curiosity evoked by the system and its contents
Perceived Usability	Users' affective (e.g., frustration) and cognitive (e.g., effort) responses to the system

Source: O'Brien & Toms (2012)

4.4 In short

The living labs, social softwares and users motivation chapter can be resumed by the following summaries:

1. Living Labs methodology is a new holistic research process for innovation development

Innovation development is presently focused on an organizational outside-in perspective.

A new type of innovation milieu is emerging in answer for the organizational needs to open boundaries towards the environment and harvest creative ideas, and develop working capabilities with all its stakeholders (e.g. customers, employees, consumers, competitors, suppliers, providers, opinion makers, opinion leaders and the general public), Kareborn et al (2009). This innovation and relational research concept designated Living Labs, aims to bring laboratorial experimentation to real life environments with the belief that this will provide valuable insights into solutions validity and product usefulness, while at the same time, surfacing new and unexpected patterns of use and of user groups.

It is a multi-stakeholder and multi-disciplinary process, involving real-life multi-contexts, constant live feedback (i.e. dialogue) and the creation of synergies for the propagation of knowledge. It involves a basic partnership between: (a) public and private universities´ research centres; (b) economic agents; and (c) social agents (i.e. end-users, regional and national authorities, etc).

2. Living Lab domains and thinking framework

Living Labs connect with other domains in research and design. Namely, Test and Experiment Platforms (TEPs) a research domain with three operational dimensions: (a) technological readiness, from immature to mature ready-to-market technologies); (b) evaluation, focusing on the balance between testing and design; and (c) differentiation, between the degree of innovation openness, from in-house to open platforms (Ballon et al, 2005).

Thinking frameworks are the eco-system architecture behind the design of innovative community support environments. “System Thinking” is the main methodology for a mind-set change to understand how things really work; going beyond events, finding behaviour patterns and seeking explanatory latent systematic interrelationships[6]

Systems thinking has been applied to problem solving, by viewing "problems" as parts of an overall system, rather than reacting to specific parts, outcomes or events. Systems thinking is a set of practices within a framework that is based on the belief that the component parts of a system can best be understood in the context of relationships with each other and with other systems, rather than in isolation. Systems thinking focuses on cyclical rather than linear cause and effect. It interrelates, innovation discovery, collaborative intelligence and innovative thinking supported by performance, value chain and factory thinking.

3. Social softwares, users motivation, communities and the innovation progress

According to Bergavall-Kareborn, Holst and Stahlbrost (2009), there are three cycles in the innovation process: (a) concept design; (b) prototype design; and (c) innovation design (Stahlbrost & Holst, 2012) .

Online content management systems with social functionality may be of great support for the Living Labs methodology, since that they can be used to engage and involve users for customer research, needs and desires (early) detection, co-design, bidirectional feedback (dialoguing) and evaluation.

Also Participatory Design (Wolkerstorfer et al, 2011) applied to Living Labs can put the end-user into the centre of the design and innovation process, since it is a set of flexible techniques for collecting fast user´ feedback, enable creativity and construction of scenarios for the future use of products and services in short span of time. There are however, some restrictions to this technical application mainly due to the physical location of participants in one place, and the ability to communicate with each other during the process.

6 For more information see: http://www.systems-thinking.org/, 2009

Finally, recruitment, engagement and motivation of the co-creation participants are determinant aspects to implement and put in motion a Living Lab innovation approach.

From this chapter it can be learnt for Ideas(R)Evolution methodological development the following aspects:

- The key principles and criticisms presented in detail in this chapter, as resumed above, may be interpreted as forming a solid base for a continued work process applicable for a Living Lab implementation must be followed by IDEAS(R)EVOLUTION methodology in the future.
- The Living Lab (LL) methodological approach – in the sense of being neither a traditional research lab nor a “test bed”, but rather an "innovation platform"- should be considered by IDEAS(R)EVOLUTION methodology in the future because it can successfully bring together, involve and engage all types stakeholders. Thus at an earlier stage of the innovation process and in real-life contexts, ideas and new concepts can be gathered, experimented and early evaluated, and prototypes developed and tested for usability and potential value that will lead to breakthrough innovations.
- Integrated Social software is recognized as essential for supporting and potentiates the several cycles of the innovation process. Therefore IDEAS(R)EVOLUTION should further develop, adapt and incorporate its IDEAS CLOUD v1.0 already developed software into further operational stages as major device with more interactive dialog, communityship and friendly usability functions (e.g. v2.0 and v3.0).
- Online applications for further and more friendly user participation, anthropological observation, sharing and discussion of ideas and community building must also be developed and implemented into the IDEAS(REVOLUTION processes. This will strongly help to gain better recruitment (more involved users with lower drop-out rates) and engagement capabilities and to obtain deeper qualitative insights about the potential benefits (e.g. added value) to the challenges in hand.
- Motivational and engagement drivers, namely reputation levels, collaborative filtering and recommending systems, for users´ participation in the process should be further researched and tested in order to add scientific knowledge in need by other researchers and to turn IDEAS(R)EVOLUTION a more efficient innovation and creative intelligence application for organizations, specially SMEs.
- A more sophisticated metric system of a blended nature, applied with statistical analysis though several levels of KPIs and textual and anthropological contents analysis, should

also be further developed and validated in order to control and adjust performance of the processes and improve the quality of operations.

5 CHAPER - EMPIRICAL STUDY

In this chapter we present all results from field applied research. The four pre-experimental cases and their effects on the evolution and development of the building model. The conceptual model definition after analyzing the results and introducing the necessary improvements after the biblioghaphicy review conducted from working research questions that the four cases raised. This conceptual model is presented in an implementation protocol manual that was followed in the final EDP case. The EDP case results are also present. In the end the final improvements after the conclusions and findings of EDP case are explained.

5.1 Pré-experimental (Case) Studies

As we presented in the methodology of the chapter, the pre-existing model of IDEAS(R)EVOLUTION, resulting from the first literature review has been tested and validated with the realization of four cases: Alvito, Tradição Engraxadores, Oeste Activo and Caldas da Rainha. Since this researchis action research based, in each of the cases, new issues or problems were observed. We conducted new bibliographic review focused on these four WRQ and new methodological inputs, new tools and new operating models were generated. All evolution is reported in the presentation of cases and in its main conclusion.

5.1.1 (Case) study ALVITO

Alvito is a small village in Alentejo with approximately 3000 inhabitants. The project was proposed by the mayor of Alvito with the objective to innovate the way of thinking the territory development thought the creation of a brand, marketing and innovation strategy completely integrated with the territorial assets and their offer in order to create the conditions for the establishment of people and businesses. The result needed to promote a sustainable and integrated territorial development supported by a branding and communication strategy to promote Alvito and attract new inhabitants and entrepreneurs.

According to Kotler et al. (2010) continued co-creation and co-participation enables a close interaction of brands with their customers, since this process facilitates the creation of insights and the spreading of the brand message, rather than the traditional process in which marketers do not have the resources and features directly from customers. This study presents an advanced platform for territorial activation based on an experimental methodology for the application of procedures, technical tools and creative dynamics in organizations, designated Brands (R)evolution (Mateus at al., 2010), that when applied to the economy of territories - Lands(R)evolution - generates new systems and new brand positioning for “Places”. This experimental study was pre-tested and validated successfully in Alvito, where the process of ideation in co-creation with the Region´s “live forces” generated a brand DNA focused on "the Land Economy” under the concept of “Economy of Happiness". The critical success factor is to create an integrated value chain for Alvito based in three economic sectors (agriculture, tourism and patrimony) orientated to the local level, capable of generating wealth and sustainable growth, upgrading it near the current knowledge of the markets, public opinion and consumers and distribution actors, in order to re-enforce its authenticity and the its qualification of origin, necessary to differentiate Alvito from other places. The Brand active management is supported by the Cellular System and OPAS Models originally developed and validated.

5.1.1.1 Challenge

The cultural aspects are central to the creation of a "sense of belonging" and are the basis of the Narrative (e.g. it self-perception) of local communities, regions and countries (Bhabba, 1990). The generation of these positive feelings is important to ensure that cultural elements are not lost from one generation to another, which ultimately prevent a global massification of cultural habits and customs. These cultural elements are relevant drivers to be used in the construction of "local brands". It is through the use of branding techniques that design thinkers can help rebuild local cultures (Hofstede et al., 2006), which potentially best meet the visitors and entrepreneurs needs. This can be thought of as a viable way to combat the worldwide trend of territorial *mass-modernization* through uniformity and homogenization of cultural, political and economic aspects. Kotler (2010) suggests an applied model of listening to customers, meeting ther needs and aspirations while simultaneously helping the planets development. Thus, territories have in their inhabitants a strong added value factor because their active participation and contribution implies high involvement and the development of the sense-of-belonging. This model is based on the assumptions of co-creation, co-participation and co-production between the territorial "living forces" (i.e. people, enterprises and institutions) for the construction, management and implementation of the vision and the strategies of differentiation to generate sustainable local economic growth. Competitive identity according to Anholt (2007) means that “every act of promotion, exchange, or representation needs

to be seen not as an end in itself but as an opportunity to build the overall reputation" and further states "competitive Identity, like a magnet, has basic properties: It attracts (consumers, tourists, talent, investors, respect and attention); and it transfers magnetism to other objects". As such, branding of territories requires the cooperation of many actors for the common objective of territorial sustainable development and quality-of-live.

The challenge that underlines the Alvito's entire project focused on the development of a Branding, Marketing and Innovation strategy, focused on territorial assets. Although, during the research it was clear the necessity to build a model of training sessions inspired in design thinking methodology but to include also, the co-creation and branding strategies associated to innovation. The Action Facto(R)y model systematizes a creative workshop sequence of groups dynamics for the innovation creation through an open information cycle of information retrieving, selection, filter of ideas to innovation.

5.1.1.2 Method

The methodology used to Alvito's approach (Mateus, Ferreira, Gomez, & Rendeiro, 2010) defines IDEAS(R)EVOLUTION methodology as a co-creative process to promote a creative way of thinking inside organizations and territories focused on knowledge transfer, is structured according to four basic pillars that define its scientific integrity and consistency. As Building Blocks the Minds Facto(R)y the areas of knowledge supporting the methodology, the observation and research to be put into action and the definition of the type of actions that should be applied to the participants (i.e. individual motivation, group dynamics, playfulness, organizational spaces, etc). The Process Facto(R)y consisting of a divergence and convergence sequence of generation of Ideas associated with the methodology. This process involves four steps: co-creation, sparkle, incubation and action. The Action Facto(R)y, a sequence of several workshops, tailor-made according to the initial diagnosis, that deals with the creative action. It is divided into three steps: Preparation (motivational skills), Ideation (versatility skills) and Systematization (cognitive skills). The tools were Creative Facto(R)y that provided the right sets of tools for the construction and systemization of the methodology. These tools measure the implementation of the methodology both on internal and external aspects of the business, of the market, as well as the stakeholders' emotional involvement throughout the process.

This way the overall project was divided into nine workshops and one kick off session, each one with specific objectives and deliverables.

Workshop 0 - Objective: Kick off and project launching reunion with pre-diagnosis and project immersion. Internally was made a territory immersion and observation in context to identify the territorial nuclear actions, define the project representatives from the territory and to define the stakeholder's profile

through ethnographic observation and photographic documentation. Externally was made a territorial immersion visiting the village and talking with the habitants with photographic documentation.

Workshop 1 - Stage: Involvement - Phase: Prepare - Tools: internal and external analysis and Foresight - Objective: The diagnostic was made with territory stakeholders and local population, based on semi-structured interviews, selection of the representing tem from the municipality, interview with the parties, a popular listening session about the territory feelings, the differentiating points and the future.

Workshop 2 - Stage: Involvement/Inspiration - Phase: Observe - Tools: Body and Sensorial Gym - Objective: Inspiration and sensorial observation by listening the territory and habitants by talking, listening an interacting using bodystroming technique.

Workshop 3 - Stage: Involvement/Inspiration - Phase: Understand - Tools: Delphi - Objective: Delphi method to validate a consensus, in groups of five elements, after defining the goals for the strategic orientation of the project and content analysis from diagnostic to discuss them and define a priority in a way to define a second analysis and a new round for overall consensus. In this case were used AEIOU and contextual inquiry research techniques.

Workshop 4 - Stage: Inspiration - Phase: Define/Ideate - Tools: Brand DNA - Objective: Inspiration for the brand DNA and the definition of the territory positioning by a creative session for the identification of the four elements that compose the Brand DNA Tool using cognitive mapping technique.

Workshop 5 - Stage: Ideation/Integration - Phase: Experiment - Tools: Brainstorming - Objective: An ideation workshop to get to know Alvito thought a swot analysis to find and define territorial opportunities, know the strengths, get to know the weaknesses and analyse the threats using cognitive mapping technique.

Workshop 6 - Stage: Integration - Phase: Validate - Tools: Swot - Objective: An ideation workshop using brainstorm tool and business origami technique to creative exploration of words, ideas, concepts, adjectives about the territory and after get consensus about the five main territory topics:

- Nature, the rural and urban, the agriculture and industry dichotomy;
- Economy, by framing production, financing and communication;
- Culture, by analysing the society, the global and local dichotomy and their identity;
- People, analysis their motivations, dreams, difficulties and relations.

Workshop 7 - Stage: Integration - Phase: Validate - Tools: 360º Reverse Thinking - Objective: an ideation workshop through 360º reverse thinking to define the ideals for Alvito by presenting the above mentioned clusters framed for the future with no limits and after that, framing into main topics;

Workshop 8 - Stage: Integration/Implementation - Phase: Validate - Tools: Delphi - Objective: Second Delphi session to analyse and get a larger consensus about the developed work. The team

delivered the statements in field, near habitants as well with a visit to local companies to validate the strategic paths defined with all stakeholders and interested parts.

Workshop 9 - Stage: Implementation - Phase: Sistematize - Tools: IN&OUT Matrix and Building Waves - Objective: An integration workshop with a deep dive immersion in the project by dividing the stakeholders in smaller groups to ideate about a creative solution for Alvito Brand through IN & OUT matrix defining vision, mission, concept, ideology and a mind map to develop the operational vision in short/medium and long frame.

5.1.1.3 Findings

Following a further literature review in social economy (Shuman,2008), territorial marketing (Gilmore, Anholt, 2010), branding (Kotler, 2010; Chernatony & Aaker, 2010) and the need of a management system that continuously refuel the strategic actives of the territory, a strategic Brand management model for territories was developed. Designated CELULAR SYSTEM it assumes the premise of civil society involvement and participation in the management, implementation and monitoring of the territorial plan. This operational model ensures the implementation of innovation and creative culture in the territories and a continuing regeneration capacity. This model is constituted by operational five cells: The Fuel Cell, the Regeneration Cell, the Dynamic Cell, the Networking cell and The Action Cell. On the other hand, it was also possible to develop and validate some new tools for brand management systems, adapted from relevant branding science authors, namely David Aaker. Therefore, an experiment was executed for the Ene(R)gy Networking System tool, which aimed to find areas in the territories that create value for the umbrella brand but when managed within the network are closer to the people and the different sectors of activity and economic development.

This led to a further literature review in Marketing, Service science, Product Development, Production, Logistics and Communication. As a result we propose the introduction of a philosophy of product management guaranteed by a “Cellular System” model into the brands´ active management process.

The territorial Brand should seek to put in the market a cyclically and integrated offer concerning its different areas, opportunities, assets, but always within the general concept and the brand DNA that was previously generated serving as a key element for implementing the marketing and branding strategy developed for the short, medium a longterm planning.

This Package offer was designated OPA’s (Opportunity Packs of Partnerships & Active Assets). Finally, it was conceptualized a Brand Observatory in order to access, analyse, interpret and monitor the entire implementation, sustainability and performance of the Brand and of its Strategy. This Observatory integrates the strategic and tactical levels of the implementation actions, having early performance

parameters, key performance indicators and service levels defined for each of the operational cells of the Cellular System.

5.1.1.4 New Working Research Question

The new working research question (WRQ1) that underlines the entire project is: is it possible to have a system that, when applied to territories, be able to control all innovation creation and information management? From this questions it was our intension to develop the IDEAS(R)EVOLUTION methodology when applied to sociological and territorial branding and innovation development, consisting of:

- Two major macro processes:
- Creative generation of ideas and brand strategy;
- Active management of ideas implementation;
- Five Stages:
- Involvement, Inspiration, Ideation, Integration and Implementation
- Nine Processes:
- Prepare, Observe, Understand, Define, Ideate, Experiment, Validate, Systematize and Test.
- Two Active management models:
- CELULA(R)SYSTEM Model: Fuel Cell (management); Regeneration Cell (adaptation); Dynamic Cell (training), Networking Cell (Connection) And Action Cell (action);
- OPA'S –Opportunities pack.
- Several new tools regarding construction, systematization and strategy such as:
- Construction: OBSE(R)ving (observation); Consumer Jou(R)ney (to know); (R)OOTS Mapping (Divergence); Sto(R)ming (ideation); SideBoard(R)ds (lateralization); D(R)awing (experimentation), LOGO (DNA).
- Systematization: Lef&(R)ight Branding (Brand's essence/ Strategy/ Design).
- Strategy: Ene(R)gy Network System, Brand Actions; IN&OUT Innovation (ideas to the market); BMS(brand marketing strategy manual).
- Monitoring and control process:
- Brand Monitor Observatory– Monitorization model regarding Brand perception, Brand performance, External marketing control, internal marketing control metrics.

5.1.1.5 Virtues and improvement opportunities

The following table 13 presents the full overview of the Alvito case, focused on what was validated, the new working research questions and the new tools and operational models created.

Table 13 - Alvito overview

		STAGES					
PHASES	W	INVOLVEMENT	INSPIRATION	IDEATION	INTEGRATION	IMPLEMENTATION	**RESEARCH TECHNIQUES**
	0						Ethnographic Observation Photographic Documentation
PREPARE	1	Internal and External Analysis,					Semi-Structured Intreviews
OBSERVE	2	Body and Sensorial Gym					Observation Bodystroming
UNDERSTAND	3	Delphi					Consensus Rounds AEIOU Contextual Inquiry
DEFINE IDEATE	4		DNA				Cognitive Mapping
EXPERIMENT	5			Brainstrom			Business Origami
VALIDATE	6				Swot		Cognitive Mapping
	7				360º Reverse Thinking		Cognitive Mapping
	8				Delphi		
SISTEMATIZE	9					In&Out Matrix, Building Waves	Case Study Cognitive Mapping

Source: the author

In Alvito case we were able to identify a set of virtues:

- The brand DNA - welcoming, reliable, harmonic and authentic - that define the essence of the territory and the people that live in, and an integrator concept 'Happy People' that enable to build the brand system;
- Brand, the design and the strategy for the territory;
- An innovative value chain that integrated all the territory assets to act as a attraction factor for young people, entrepreneurs and businesses.

We can also state improvement points, such as:

- The management of the process, with the introduction of new phases to foster creativity in the innovation process as well as new management processes to manage the overall project;
- Knowledge to the stakeholders and leadership of the municipality in order to delegate the implementation and the future development;
- The follow up process.

5.1.2 (Case) Study TRADIÇÃO ENGRAXADORES

Tradição Engraxadores was the result of a partnership between IADE and Santa Casa da Misericórdia from Lisbon (a social organization). The propose was to build a brand and develop an innovative product to revitalize the traditional shoe polishers profession, framing into the current needs, increasing its visibility and giving it social characteristics. The project aimed to develop a set of kits of greasing boxes and a communication plan but also aimed to transfer knowledge to the social entrepreneurs, the shoe-shinning polishers, the definition of role models for the profession, formation of new shoe-shinning polishers and entrepreneurship.

The Engraxadores' Tradition project aimed to transform and turn more dynamic a traditional profession present in Lisbon. This project aimed to recover the shoe-shinning profession, dignify and increase its social relevance through a wide range of partnerships. IADE – Creative University, in the design area, IDEAS(R)EVOLUTION in the marketing and communication areas, ISCTE in planning, institutional support, scientific studies and entrepreneurship, Santa Casa da Misericórdia de Lisboa in operational aspects, field contact and social entrepreneurship and CAIS, (a social institution that support people in difficult situations) by providing professional occupation and financial support.

This partnership allowed to look into this old professional and repositioning, innovating and framing it into today's needs, increasing its social relevance with a strong focus on social reintegration. This project turned this profession into a "charm profession" recovering the habit and tradition of a sophisticated and cosmopolite way of living from the consumer perspective and, at same time, providing opportunities to people that were in difficult situations to have a professional occupation, earn money and straighten up their lives through this opportunity.

The overall project and partnerships warned us to the importance of the collaboration in small scales between several social, academic, training and media institutions and people to deliver a relevant project to civil society.

5.1.2.1 Challenge

The Tradição Engraxadores main challenge was to develop a brand and all the communication plan as well as manage all the partnership interactions, workshops with several stakeholders and exchanged information between them for the development of a project that:

- Requalify the Engraxadores profession turning into a "charm" profession and habit for the consumers;
- Increase the overall income by Engraxadores by developing a brand and a communication that increased the number of clients as well as the frequency of the utilization;
- Increase the number of professionals in this activity by providing formation, increase the awareness and the willingness to develop and attractive to young professionals;
- Turn the Tradição Engraxadores project into a cooperative franchising by providing partnerships, formations opportunities, access to resources and behaviour code.

5.1.2.2 Method

The methodology that was used to fulfil the project's challenges and the objectives was the Brands(R)evolution in order to develop a brand, communication and a product that fulfil the real needs of the Engraxadores. The Brands(R)evolution methodology provided to the project:

- The development of a product, the Engraxadore's box, by a challenge launched to Design students from IADE and further evaluated by a set of Design experts and the actual professionals to choose the most ergonomic and functional one;
- A useful way to manage observation, information, studies and opinions. The methodology, provided a co-creative way of developing and manage the innovative Engraxadore's product according to Engraxadores perceptions, point of view of the profession and experience as well as a brand and communication plan according to the information gathered in field from all the partners, institutions and professionals itself, merging external and internal stakeholders into a transdisciplinay approach;
- The new brand development and Design – Brand Building.

This way the overall project can be divided in five workshops that framed the complete project development according to IDEAS(R)EVOLUTION methodology:

Workshop 1 - Stage: Involvement - Phase: Prepare - Tools: Creativity by Arts - Objectives:

- In line with IDEAS(R)EVOLUTION methodology this first stage had the objective to break boundaries, create a union spirit between Engraxadores, remove them from the usual places using bodystorming technique to balance the knowledge between Engraxadores. Was a training event with strong technical aspects and to co-create and co-generate the

behaviour patterns for further training. This phase was develop in partnership with CAIS, DEES and IMMERSIS;

- This stage had also a strong input from ISCTE (Instituto Univesrsitário de Lisboa) through a sociological and business study providing the main drivers for the brand focus, the perceptions about the profession, the service and the possible opportunities to develop a business itself and the partnerships aspects with several stores for the integration of the new professionals;
- From IADE became a useful contribute for the project by involving Product Design students with the professionals for the development of a newer and innovative version of the Tradição Engraxadores Box. (shoe-shinning box).

Workshop 2 - Stage: Inspiration - Phase: Observe - Tools: Ethnographic Diary and Consumer Journey - Objectives:

- this stage leaded by IDEAS(R)EVOLUTION produced in-depth and contextual observation, in partnership with CAIS, for deeply understanding of the most important elements in the creation phase using contextual inquiry technique. It allowed fully understanding and closing contact with real Engraxadores and living one day the profession. Was important to know the geographical dispersion of Engraxadroes as well as to interview some of their clients about their opinions about the profession;
- as visual an ethnographical research was produced to understand the origins of the profession;
- the Consumer Journey method was used to understand client's habits, needs and occasions as well as to provide the information about new service touch points.

Workshop 3 - Stage: Inspiration/Ideation - Phase: Define/Ideate - Tools: Brand DNA and Brainstorm - Objectives:

- The ideation stage was based on information from the field research, developed by IDEAS(R)EVOLUTION and the ISCTE study. It developed the Brand DNA, defined the vision and the mission of the brand and the further communication elements using cognitive mapping technique.

Workshop 4 - Stage: Integration/Implementation - Phase: Validate/Sistematize - Tools: Swot, Creative Idea and Brand Building - Objectives:

- It developed a macro observation by SWOT analysis method to better understand and define the strategic planning of the brand and the communication (short, medium and long range) as well as to define specific brand and communication goals using cognitive mapping and business origami techniques.

Workshop 5 - Stage: Test - Phase: Implementation - Tools: Role Play - Objectives:

- It defined the events in order to present and test the brand acceptance in partnership with CAIS, IADE, ISCTE and SCML with support of all the audio-visual and advertising communication supports using critical incident techniques.

5.1.2.3 Findings

This project allowed IDEAS(R)EVOLUTION prove the application of the methodology to social, branding and communication innovation through the Action Factory model of workshops as well to test the application of the Cellular System in the management of the information between the partners to develop and promote a continuous flux of information.

5.1.2.4 New Working Research Question

The research question (WRQ2) that underlines the entire project and applied in a larger scale was: if it's possible to create a system that, when applied to collaboration and co-creation between institutions is able to deliver an innovative product, brand or communication to promote the collaboration between institutions within a innovation focus?. This project leaded also to further researches and new research questions namely related with the application of collaborative approach in wider groups, institutions and even territories as OESTE ATIVO.

5.1.2.5 Virtues and improvements opportunities

The following table 14 presents the full overview of the Tradição Engraxadores case, focused on what was validated, the new working research questions and the new tools and operational models created.

Table 14 - Engraxadores Overview

		STAGES						
PHASES	**W**	INVOLVEMENT	INSPIRATION	IDEATION	INTEGRATION	IMPLEMENTATION	INTERACTION	RESEARCH TECHNIQUES
PREPARE	1	Creativity by Arts						Bodystroming
OBSERVE	2		Ethnographic Diary, Consumer Journey					Visual Ethnography Intreviews Contextual inquiry
UNDERSTAND								
DEFINE	3		DNA					Cognitive Mapping
IDEATE				Brainstrom				Cognitive Mapping
EXPERIMENT								
VALIDATE	4				Swot			Cognitive Mapping
SISTEMATIZE						Creative Idea, Brand Building		Cognitive Mapping Business Origami
TEST	5					Role Play		Critical Incident Technique

Source: the author

In Engraxadores case we were able to identify the following virtues:

- A profitable and meaningful work in partnership among all the entities - social and academic ones;
- Student motivation and involvement to the project;
- A product that born from the mix between the shoe polisher experience, needs, students creativity and professors knowledge;
- The development of an entrepreneur mindset in people with social problems, giving them a new opportunity.

We can also state improvement points, such as:

- Better systematization of the networking logics;
- Detailed definition of the roles and the participation of each entity in the process;
- Improvements of how process of social responsibility nature could lead to a wider dissemination effect through a better communication of the project.

5.1.3 (Case) study OESTE ATIVO

West is a region in the centre of Portugal with 362.523 inhabitants and 2486 km^2. The Oeste Ativo project promoter's were: AIRO - Industrial Association from Oeste and IPL - Polytechnic Institute of Leiria. Together they apply to EU funding programs for the implementation of a project to regenerate, through co creation with living forces involvement. The project seek to raise, aggregate and create the momentum where all the people of the territory, in collaboration, can truly ACT ACTIVELY for CHANGE, focused on knowledge, networking, economic activities and anchor business. Oeste Ativo acted on the territory and the people, transferring knowledge, tools and knowhow enabling people's to create their business in synergy with other businesses.

OESTE ATIVO was the result of an experimental implementation of the methodology IDEAS(R) EVOLUTION - Design thinking for social and territorial innovation (Mateus et al, 2009; 2010; 2011) in the West region of Portugal (e.g. Oeste Ativo).

Based on innovation generation and management from past projects the WRQ that underlines all project is: if it's possible to build a knowledge and information generation model (similar to Alvito Cellular System and based on Networking aspects from Tradição Engraxadores) through a co-creative, collaborative and participative processes involving stakeholders from businesses, governance institutions, civil society and several entrepreneurs. All this, under a Vision and Strategy for regeneration of the local industrial sector developing simultaneously: an innovation network and entrepreneurship network in the Oeste Ativo.

The main effect that the science of design brings to a territory is to simplify complexity. After eighteen months of methodology implementation, a sequence of 6 stages (e.g. Involvement, Inspiration, Ideation, Integration, Implementation and Interaction), (Mateus et al, 2011), the Oeste Ativo project materialized in the implementation of an ecosystem for innovation that is capable of generating a controlled and fertile Habitat.

Powered by Biodiversity of the species (i.e. people, companies/enterprises, public and private institutions, etc.) while respecting the complexity and randomness of environments and enabling and encouraging the sharing, the cooperation, the competiveness, the mutualism and the symbiosis between all agents for the (R)evolution and regeneration of the territory.

The main changing forces involved were a group of 30 territorial stakeholders, composed by individuals, internal and external public representatives of the Oeste region living forces. These stakeholders defined the priorities and the development clusters for the territory: Agriculture, Energy, Heritage & Culture, Ceramics, Health & Wellness and Gastronomy. From the collaborative dynamics and creative tools exercises, also emerged the Technological and the Tourism Industries, as transversal clusters as holistic aggregators and integrators, as well as the base support for the future Territorial differentiation, positioning and investment attraction.

Concludes presenting a comprehensive Strategic Brand building program and a Brand energy network system generically designated ACTIVAMENTE (action orientated). The system organizes the innovation effort of the Oeste region seeking to create brand value through communication synergies, optimization between the participants a group of different sub-projects, thus generated by the broader (holistic) network of knowledge and action designated OESTE ATIVO ECOSYSTEM.

5.1.3.1 Challenge

A relationship between public and private organizations has presently drastically changed. On one hand, public organizations have modified their behaviour, shifting from direct and unique interventionists to effective collaborators and supervisors. On the other hand, private actors have been involved in implementing policies in order to strengthen sectors such as health, education, and civil infrastructures, activities that in the past were controlled exclusively by the public powers. Crossing the traditional approach of separate roles for public and private actors, public-private partnerships lead to increasing cooperation in achieving social and economic development (Kooiman, 2003).

These formulas have become a dominant approach to territorial development and implementation is presently encouraged by a large number of European initiatives. Many scholars argue that it undoubtedly represents a tangible signal of the transformation of governance systems (Lowndes & Skelcher, 1998; Osborne, 2000; OECD, 2001, 2004; OECD-LEED Programme, 2001; Glendinning et al., 2002; Bassoli et al, 2007; Graziano & Vesan, 2008) from hierarchical and vertical to horizontal and agile structures, characterized by stakeholder involvement and participation.

Territorial development involves the creation of locally competitive goods connected with local culture (Crouch et al., 2001). This theoretical frame underlines the basic need that the OESTE INDUSTRIAL ASSOCIATION (e.g AIRO) demonstrated, a collaborative and participative “space” where

entrepreneurs could present their business ideas, co-create projects and implement them without the need of approval, support and license from any public governance system. They wanted to call themselves "Warriors against crisis". They thought that IDEAS(R)EVOLUTION methodology could give them the methods, the tools and the dynamization that they needed to "bring this Warrior Spirit into life".

5.1.3.2 Method

The methodology that was used to Oeste Ativo approach aimed to involve firms, organizations, non-profit entities, and civil society (e.g. stakeholders) and to create an opportunity to propose better ideas and spread innovative ways of managing local relationships, which tend to have higher results than when only public actors were taking the decisions. This project developed with the goal of provoking and lead a (R)evolution for the change of mindsets and the creation of knowledge in the OESTE territory, focused on the economic activities and business anchors to create a movement that impacts the largest number of people with willingness to change the region, and that want to implement real projects, resulting from the synergies created in the movement OESTE ATIVO allowing a precursor and mimetic effect. This was a full range methodology application composed by:

The 2 macro processes: Tribe Activation and Dialogue with the tribe, by implementing the 3 sequential models:

- Action Factory Model (Mateus & Gomez, 2009, Mateus et al, 2010, Mateus et al, 2011) - That consisted on a Sequence of 7 workshops in order to generate the creative ideas for the territorial development, the Strategy and the Planning.
- The Cellular System model (Mateus & Rosa, 2011, Mateus et al, 2011) - That consisted on the parameterization of the OESTE ATIVO Innovation Ecosystem management board with the participative governance philosophy.
- The Neighborhood Circles Model (Mateus & Rosa, 2011)- That consists on a Marketing approach to the development of dialogue with the stakeholders and the consumers to co-create and to disseminate the OESTE ATIVO ecosystem. A specific website based platform was developed to allow this interaction: www.oesteativo.com.

This way the overall project was divided into ten workshops and two conferences, each one with specific objectives:

Workshop 0 - Individual interviews with local leaders, opinion makers, governance and initial Stakeholders Selection

Workshop 1 - Stage: Involvement - Phase: Prepare - Tools: Lateral Cooking - Objective: Group Dynamics and engagement and territorial perceptual mapping generated by food preparation in group collaboration using bodystorming and creative toolkit techniques.

Workshop 2 - Stage: Inspiration - Phase: Observation - Tools: (a) co-observation - Objective: the stakeholders are the project observers and all collected information is filtered by the stakeholders group. (b) Foresight - Objective: Prospective group analysis where we are where we should be. This stage used AEIOU and contextual inquiry techniques.

Workshop 3 - Stage: Inspiration - Phase: Understand - Tools: (a) Roots - Objective: Explore the Macro context (planet, people, Profits and Culture) - (b) Sense Of Belonging - Objective: to understand the perceptions and cognition about the territory "to Feel" and "to Be". This stage used AEIOU and contextual inquiry techniques.

Workshop 4 - Stage: Inspiration - Phase: Define - Tools: (a) DNA - Objective: Define the deep values and genes of the territory - (b) Consumer Journey - Objective: One day of a potential entrepreneur in the OESTE Region in order to identity the actual service experienced and the emotional and motivational drivers. This stage used cognitive mapping and behavioural map techniques.

Workshop 5 - Stage: Ideation - Phase: Ideate - Tools: Brainstorming - Objective: to Transform the collected information into a new strategic vision and path for the OESTE region and to selected the most potential ideas from the stakeholders.

Workshop 6 - Stage: Ideation - Phase: Ideate - Tools: Inno IN-OUT matrix - Objective: To transform the potential ideas from the brainstorming into innovation projects for OESTE ATIVO thinking about markets, consumers and economy using case study technique.

Workshop 7 - Stage: Ideation - Phase: Experiment- Tools: (a) Prototyping - Objective: Group meetings to develop the projects ideas, Polinization sessions where all stakeholders collaborate with each other. This stage used business origami technique.

Workshop 8 - Stage: Ideation - Phase: Experiment - Tools: (a) Internal Delphi - Objective: Reaching a internal consensus about the sectorial clusters, identifying the synergies between ideas and the emerged networks for each project.

Workshop 9 - Stage: Integration - Phase: Systematize - Tools: (a) Left & Right Branding - Objective: To develop a full brand identity and brand building program to OESTE ATIVO Project - Tools: (b) Innovation Iceberg - Objective: to help to construct all clusters projects on the go to the market stage. This stage used competitive testing and business origami techniques.

Workshop 10 - Stage: Interaction - Phase: Dialogue - Tools: (a) Always On - Objective: We based Platform to collaboration and co-creation for actual and new stakeholders, as well as dialogue platforms with end-users to promote OESTE ATIVO cluster projects. - Tools: (b) Co-creative Labs - Objective: Physical Innovative spaces available to the community to continue the effort of network and co-create new projects.

With two regional conferences developed by the team:

• Conference 1 - IDEAS(R) Stage: Integration - Phase: Validate - Tools: External Delphi - Objective: To present to a bigger group of potential stakeholders the strategic path reached, to motivate others to come to OESTE ATIVO Ecosystem and to collect feedback in order to provide the necessary adjustments and improvements.

• Conference 2 - IDEAS(R) Stage: Implementation - Phase: Test - Tools: Go to the market - Objective: Presenting The Brand OESTE ATIVO, The Strategic Clusters ATIVAMENTE and to launch the first 3 stakeholders projects (Ecobike Tour, Talents Academy and Heritage).

5.1.3.3 Findings

Along with this process more than 30 potential entrepreneurs were impacted. These stakeholders defined the priorities and the development of 10 sectorial clusters for the territory based on the traditional economic sectors: Agriculture, Energy, Heritage & Culture, Ceramics, Health & Wellness and Gastronomy. From the collaborative dynamics and creative tools exercises, also emerged the transversal clusters Technological and the Tourism Industries, as holistic aggregators and integrators, and the base support for the future territorial differentiation, positioning and investment attraction.

From this clustering effort also emerged the networks between entrepreneurs and concrete projects that are in a development stage within each cluster; 9 projects have already experienced the go the market approval, of which 3 were already launched with success:

- Ecobike tour - Sustainable Mobility Vehicles for tourism resorts and regional tours
- Talent Academy - Community and Social responsibility Project regarding the unemployed persons
- Heritage - Modern and innovative approach to traditional regional Ceramics.
- Cognos - Knowledge based company to provide Training Courses to local Companies
- Link Up - Creativity for Industry company to provide the links between creative industries, industrial companies and local students
- OESTE ATIVO - Website platform to provide collaboration and communication synergies
- OESTE region - Website and Portal to provide international visibility and distribution channels for local products
- Sustainable Housing - Projecting wooden houses with renewable energies
- Food for Senses - Local produced natural food with sensorial design concept to the market

During the generation, incubation, implementation and dissemination of each one of these projects there was a continuous flow of ideas, an information cycle and an enlargement and enrichment of the people network that supports the Ecosystem.

This innovation Ecosystem was based on a guerrilla attitude, where a group of highly motivated people seeks achievements trough concrete actions, assertive, effective and capable of causing change and evolution of mentalities and attitudes in the OESTE region. Their mission is to create a knowledge stock for the region within the business organizations of the territory, acting in advanced training and the transference of this knowledge for other agents in the territory.

According to what we know about territories and the implementation of a brand system and an ecosystem in territories, we have to conclude that, in order to develop these systems in the best possible way, we need the Cellular System Model of management. In Oeste Ativo project territorial development is divided in several sub-projects forms: implementing the strategy and, ultimately, disseminating it through neighbourhood circles that in turn will require a central hub or a central management point, However, we need a system that can not only operate centrally, but that can also manage, monitor and improve on a more specific and detailed level. Oeste Ativo was the perfect situation to involve aspects from an atavistic nature. Therefore, we find it valuable to cross the practical plan of strategic action developed by Aidan Ricketts in The Activist's Handbook, (Ricketts, 2012) with our own Cellular System Model to provide a clear, structured and organized model for management that will benefit the entire project and improve the overall communication between the different projects.

This way the cellular system model is composed by five cells (see figure 47):

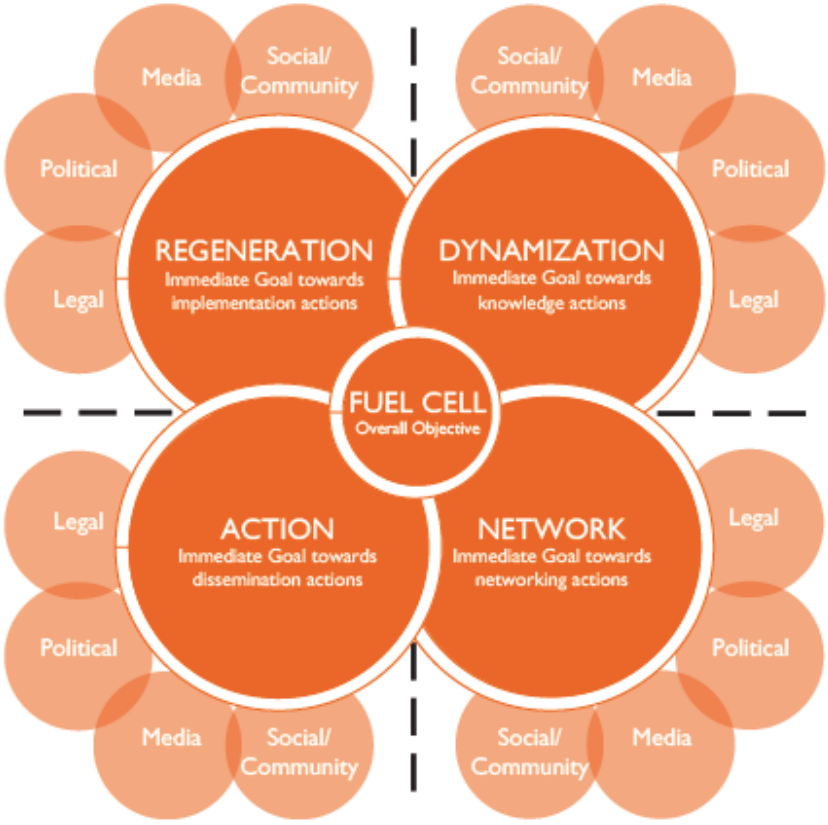
- The REGENERATION CELL has the function of providing specific tactics towards the creation and implementation of the brand. Specifically this means that this cell needs to develop actions to put theory into practice. Not only does this cell have to develop these actions, they are also responsible for the monitoring, feedback and continuation of these specific tactics. Through monitoring this cell can create and improve existing tactics and better implement the Oeste Ativo brand.
- The DYNAMIZATION CELL concerns everything that has to do with knowledge. More specifically, this cell gathers, develops and researches new ideas, tools, models, theories and strategies that could serve as a valuable purpose to the project. It aims to disseminate knowledge among the different projects and brands. This cell collects information about the best practices and the best professionals in all the different areas of interest. It should also stimulate the involved people to undertake advanced training and increase their level of academic knowledge, to better develop their own projects.

- The NETWORK CELL is, logically, responsible for everything that has to do with creating and maintaining network. In a first stage, this cell needs to create and nurture the own, internal network of the Oeste Ativo project and, ultimately, the Oeste region. The created networks need to be both on a technological and on a human ware level. The goal is to create a strong internal network for dissemination of knowledge among the projects and to, in a second stage, implement this network in other, external and relevant networks, be it Portuguese, European or global networks.
- The ACTION CELL, which is responsible for the dissemination of the brand Oeste Ativo. This cell designs actions that spread the concept, vision and values of the brand and the fact that the brand can make an impact. This cell differs from the Regeneration Cell in that sense, that it is more generalistic. This cell has to do with awareness and the safeguarding of philosophy and vision. The Regeneration Cell works faster and more to the point.

Each of these cells has a specific goal in mind. A goal that is subject to change once it is reached. This immediate goal needs to be put into action. According to systems of activism, these actions should be called 'tactics'. Tactics that are implemented in four levels: social/community, media, political and legal:

- Social and Community are specific tactics for implementation that comprise of things such as: community awareness, rallies, protests, public campaigns;
- Media tactics include certain media releases and especially how and when you do them, letters, events, websites, audiovisual material;
- Political tactics are about identifying political willingness or unwillingness towards your goal. Once identified, we can do lobbying, send letters, use media;
- Legal tactics consists firstly of research. Are the things you want to do legal? This is very important to note, because many of the actions that are undertaken will be of a guerrilla nature. Guerrilla campaigning is, by definition, a borderline legal way of action. It is therefore important to understand the legal context. On top of that, tactics concerning this also include understanding legal restraints to the goal and how you can either bypass these restraints or influence them in your favor.

Figure 47 - Cellular System Model And Activism



Source: Mateus et al (2012)

5.1.3.4 Working Research Question

The working research questions (WRQ3) that underlines the entire project was:

- If it is possible that the ecosystems created and generated in territories can be continuously managed by the impacted participants as known as “activists”?
- If this ecosystem able to grand the continuity of the innovation, entrepreneurship and territory business renewal effort?
- If it is possible to develop and IT based platform that improve the participant’s continuity and involvement with the system and the ecosystem created?

This project leaded also to further research and new research questions related with brand mutability and generative potential as the further Caldas da Rainha project presents.

5.1.3.5 Virtues and improvements opportunities

The following table 15 presents the full overview of the Oeste Activo case, focused on what was validated, the new working research questions and the new tools and operational models created.

Table 15 - Oeste Activo Overview

		STAGES						
PHASES	**W**	INVOLVEMENT	INSPIRATION	IDEATION	INTEGRATION	IMPLEMENTATION	INTERACTION	ESEARCH TECHNIQUE
	0	Internal and External Analysis						Intreviews
PREPARE	**1**	Body and Sensorial Gym Lateral Cooking						Bodystorming Creativity Toolkit
OBSERVE	2		Diary Foresight					AEIOU Contextual inquiry
UNDERSTAND	3		Roots Sense of Belonging					AEIOU Cognitive Mapping
DEFINE	4		DNA Consumer Journey					Cognitive Mapping Behavioural Map
IDEATE	5			Brainstrom				
	6			In-Out Matrix				Case Study
EXPERIMENT	7			Prototype				Business Origami
VALIDATE	8			Delphi				
SISTEMATIZE	9				Left & Right Branding Innovation Iceberg			Competitive Testing Business Origami
TEST	C2					Go-to-the-Market		
DIALOGUE	10						Always On Co-Creative Labs	

Source: the author

In Oeste Ativo case we were able to identify a set of virtues:

- "Activists" approach, a set of highly motivated people that are the main ambassadors of the project development, communication and dissemination;
- The ecosystem model, brand, strategy and territorial development and management;
- High motivation for entrepreneurship, leading to creation of eleven new startups.

We can also state improvement points, such as:

- Search for a better system of management for the ecosystem that include brand, communication and innovation;
- The appropriation of the ecosystem by the promoter entity;
- The platform and the integration of ICT technologies in the ecosystems.

5.1.4 (Case) study CALDAS DA RAINHA

CALDAS
DA RAINHA

Caldas da Rainha is a city in the center of Portgal with 30.343 inhabitants. The project was developed for city municipality aimed to create a brand and a set of integrated communication and branding actions that mirrors the creative essence of the territory. Also the proposal was to develop a brand in co-creation with the stakeholders from all the activity areas, a territorial development and integrated strategy between activity sectors as traditional food, ceramics industry, agriculture, hydrotherapy, art and design, energy and natural resources, technologies and tourism.

Caldas da Rainha territorial brand was leaded by IDEAS(R)EVOLUTION and parameterized to fulfil the challenges, needs and objectives of Caldas da Rainha municipality. It was a full process based on a set of workshops aiming to create a brand that represents the essence of the Region. The concept of Caldas da Rainha brand was *Naturally Irreverent* resulting from a thorough observation and co-creative work with local stakeholders to synthesize the main aspects of the DNA of Caldas:. *Hospitable* mirror a welcoming region and people;, *healthy* mirror a region the has deep relations with the territory and their preservation; *traditional* mirroring a place where the traditions are preserved; and *creative* mirroring a region where creativity is present in all objects, people and places. “Naturally Irreverent” came from the elasticity of adaptation and reinventing the creativity, their offer, and irreverent from the territorial contrasts.

Ten workshops joining 25 motivated people around the brand creation process applied the full methodology. Throughout the work, from the definition of the following workshops of creative tools support and promotion of innovation processes, we rely on expertise of participants, essential for the understanding and adaptation to the context of our project, trying to install in parallel to the stakeholders a set knowledge that we consider important. With great effort and work was possible to fulfil the proposed objectives by creating a brand that is the mirror of the region and, above all, value and take advantage of the best of all assets have. The project also had the support of Catarina Ramos (a Masters student of Communication and Image at IADE) for the development of a communication strategy.

5.1.4.1 Challenge

The challenge was to develop a brand in co-creation with the local stakeholders that reflected the creative essence of the territory and, in parallel to bring innovation, creativity and differentiation to a place that in his essence is *Naturally Creative*.

5.1.4.2 Method

The methodology that was used in Caldas da Rainha was the pre-model of IDEAS(R)EVOLUTION already improved with the insights previous cases. In this project we target the creative people from the territory to propose better ideas for the brand. This project aimed to develop a new, innovative and differentiating brand for the territory focused on the main territorial aspects in territory. It was a full range methodology application composed of 10 workshops:

Workshop 1 - Stage: Involvement - Phase: Prepare - Tools: MindPlay and Body and Sensorial Gym - Objective: the objective was to kick off the project, get to know the stakeholders and leverage the stakeholder's perceptions about the territory with Mindplay and Senses tools. These tools allow to open the stakeholders minds and potentiate their creative abilities, the creativity through the senses and leverage of perceptions. This stage used bodystorming techniques.

Workshop 2 - Stage: Inspiration - Phase: Observe - Tools: Diary - Objective: the objective was to leverage and identification of the identity elements of the territory with Dia(R)y. This tool allowed to leverage and the identification of Caldas da Rainha as well as the comprehension of the territory contexts, community, people, local, influencers and local production. This stage used contextual inquiry techniques.

Workshop 3 - Stage: Inspiration - Phase: Understand - Tools: Sense of Belonging - Objective: the objective was to understand the territory feelings with (R)Sense of Belonging. This tool allowed understanding the perceptions and the cognitions as well as emotions about the territory. This stage used AEIOU techniques.

Workshop 4 – Stage: Ideation - Phase: Define - Tools: Brand DNA - Objective: the objective was to find the deep values of the territory and brand essence with DNA tool. This tool allowed finding the four key words that define the DNA, or the essence, of the territory and of the brand. This stage used cognitive mapping techniques.

Workshop 5 - Stage: Ideation - Phase: Ideate - Tools: Brainstorm and Trend Cards - Objective: The objective was to promote the creative divergence and convergence for the ideas generation with Brainstorm and Trend Cards. This tool allowed stakeholders to generate ideas framed with the strategic territory vision and generate ideas with support of benchmarking of existing ones. This stage used competitive testing techniques.

Workshop 6 - Stage: Ideation - Phase: Experiment - Tools: Prototyping - Objective: the objective was to frame the key concepts of the brand into real shapes using prototyping. This tool allowed stakeholders to define and materialize the DNA concepts into clay shapes. This stage used creative toolkit techniques.

Workshop 7 - Stage: Integration - Phase: Validation - Tools: Prototyping - Objective: the objective was to get a wide consensus about the strategic ideas and brand innovation by using external Delphi. This tool allowed exchanging and classifying the ideas as well as new opinions, suggestions and improvements.

Workshop 8 - Stage: Integration - Phase: Sistematize - Tools: Left & Right Tool - Objective: the objective was to define the brand building strategy, essence and creative idea by using the Left and Right tool. The tool allowed, from the brand DNA the definition of all the strategic aspects of the brand, analyzing the context and all the brand building, system, management tools and metrics. This stage used Business origami.

Workshop 9 - Stage: Implementation - Phase: Test - Tools: InnoBrand Plan - Objective: the objective was to define the dialogue phases and brand actions with consumers using the InnoBrand Plan. This tool allowed defining and constructing the communication plan in 360 º logic as well as communication supports, the message, contents and the creative idea unfolding. This stage used competitive testing techniques.

Workshop 10 - Stage: Interaction - Phase: Dialogue - Tools: Always on - Objective: the objective was to define the dialogue channels to activate the brand. This tool allowed to define and present the creative web based platform for the stakeholders collaboration and co-creation with the brand as well as to define the dialogue channels to the promotion and activation of the brand, explain and transfer the mutable brand capacities.

5.1.4.3 Findings

The Caldas da Rainha project has enabled to foster the integration between the brand creation, stakeholder participation and, use of technological skills to promote the generativity and mutability of a brand that defines himself as Naturally Irreverent. Caldas da Rainha Brand and all the research about this type of brand Design identifies a possible decoder for encoding symbolic and significant elements to be used as a parameterization referential. It proposes a procedure to explore the ways interpreted brand forms and mutations with the aim of enhancing the process of creativity in Design, making it more experiential, exploitative and interventionist forms for innovation. Also it tested the link between design process and co-creation, applied into territories to create a brand identity for Caldas da Rainha and the

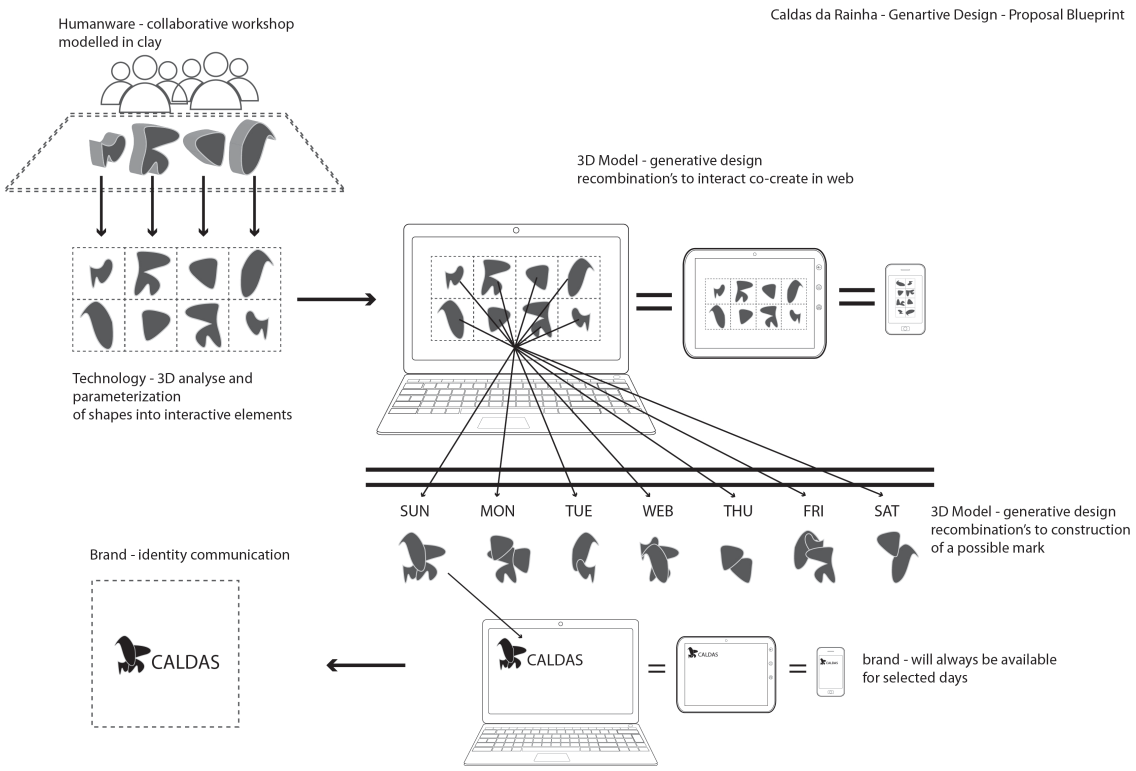
further communication platform. It developed a conceptual model within use of Parameterized and Generative Design technologies to translate the brand DNA into interactive and relational points.

These indicators, related with the brand essence and intrinsic territorial values, are the result from the this field application co-creative process with the participation of stakeholders. It identified values through DNA process (Gomes et all, 2009) were the influences from the creative stakeholders represents the activities and assets of the region shaped in clay forms.

We achieve a formal languages inspired by the previously identified values for the tridimensional and parameterization of a virtual environment using different software's and tools such as 3D scanners. Re-creating and subtracting different surfaces, forms and objects that can be distributed as Caldas da Rainha merchandising, available for all community members and visitors due to interaction with institutional communication platforms of the Brand. (see figure 48)

The main goal of all this process it's to create a first participative interactive and generative territorial brand program on real time supports and interaction. (Leonor & Mateus, 2013)

Figure 48 - Caldas da Rainha Generative Design Blueprint



Source: Leonor and Mateus, 2013

The parametric design, was the approach to develop and explore applications with decompositions of shapes, colours, textures through the data collected and made available through a generative plug-in to be explored by designers. This new territory is an exponentially globalization means for the exploration

of ways and in new product design. The variety of results and applied a validation of their behaviour in terms of materials, production and performance is substantially enhanced in view of traditional processes.

Thus, the trial of the signs identified in previous stages of the project can quickly identify constraints, but which can quickly be changed and developed as a variable product.

5.1.4.4 Working Research Question

The working research question (WRQ4) that underlines the entire project was: *if it's possible to create a generative and parametric brand that preserve territory identity of and, at the same time, allow the interaction, involvement, modifications and parameterizations from all the stakeholders that can be turned into merchandising, local brands and communication?*

5.1.4.5 Virtues and improvements opportunites

The following table 16 presents the full overview of the Caldas da Rainha case, focused on what was validated, the new working research questions and the new tools and operational models created.

Table 16 - Caldas da Rainha Overview

		STAGES						
PHASES	**ACTION**	INVOLVEMENT	INSPIRATION	IDEATION	INTEGRATION	IMPLEMENTATION	INTERACTION	RESEARCH TECHNIQUES
DIAGNOSTIC PREPARE	**1**	Internal and External Analysis Mind Play Body and Sensorial Gym						Bodystorming
OBSERVE	2		Diary					Contextual inquiry
UNDERSTAND	3		Sense of Belonging					AEIOU
DEFINE	4			DNA				Cognitive mapping
IDEATE	5			Brainstrom Trend Cards				Competitive Testing
EXPERIMENT	6				Prototype			Creative Toolkit
VALIDATE	7				Delphi			
SISTEMATIZE	8				Left & Right			Business Origami
TEST	9					InnoBrand Plan		Competitive Testing
DIALOGUE	10						Always On	

Source: the author

In Caldas da Rainha case we were able to identify a set of virtues:

- The disruptive territorial new brand system, based on generative design that is closely connected with the creative tradition of Caldas da Rainha territory;
- The interactive brand system. It represents the territorial governance full acceptance of the innovation process ideas. They are investing in new technology to allow the interaction between all citizens with their brand;

- The adhesion of the creative community of the territory in the enjoyment of the brand activation and interaction events.

We can also state improvement points, such as:

- The needed investment in technology, such as the brand interaction platform that will allow the generative transformation of the identity designed;
- The clear definition of a co-creative project leader. Territorial governance is not trained to manage the communication strategy and plan;
- The articulation between local municipal brands, inter-municipality brands and regional brands. There is not a clear macro strategy to set the standards and guidelines.

5.2 In short

As shown in the table 17, the four cases conducted according to provided thesis methodology have validated the conditions stated:

- The IDEAS(R)EVOLUTION methodology can be applied successfully on different innovation challenges, from territorial innovation to social innovation and technological innovation within the place branding context;
- Due to the action research nature, in each on the cases new questions and improvement drivers arouse that allowed the researcher to improve the pre-conceptual model. From Alvito insights, we created the cellular system operational models that focus on the active and participative innovation management system. This model was then implemented and validated in the Tradição case. From Tradição data we needed to create a Neighborhood cycles models that focus on activating the community to be part of the innovation effort of the organizations. That model was implemented and validated in the Oeste Case. From Oeste case insights, we created a engagement and Collaborative Platform as well as generative brand design interface. Both models were implemented and validated on the Caldas da Rainha case. Finally from Caldas da Rainha case insights, we created the living lab's adaptation to the IDEAS(R)EVOLUTION process, activation platform and the proceedings manual. This last models and drivers were integrated on the EDP final case research design.

Table 17 – Comparative evolution – four cases

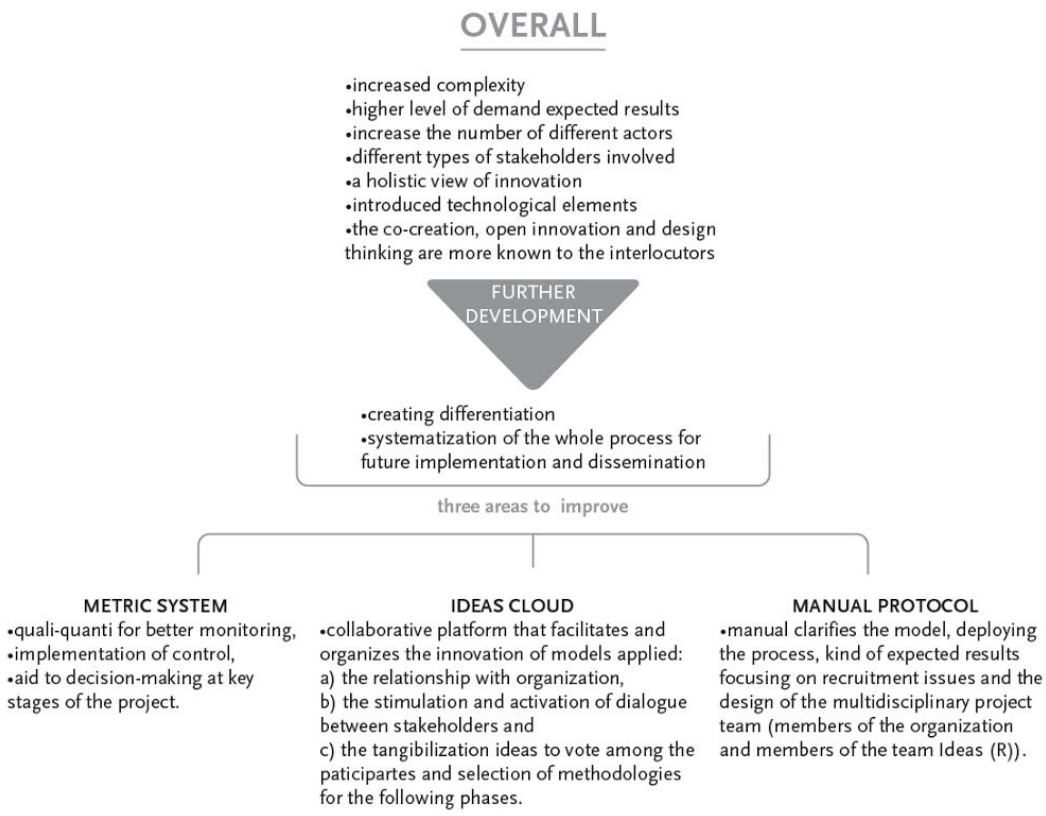
	OUTCOMES	TESTED AREA	VALIDATED	CREATION	
AIVITO	•Brand •Marketing	Territorial	ACTION FACTORY	•Celular System Model •OPA's •Ene(R)gy Networking System Model	•Celular System 2.0
TRADIÇÃO	•Product •Brand •Communication	Social	CELULAR SYSTEM	•Celular System 2.0 (partnerships)	•Neighborhood circles
OESTE	•Enterpreneurship Ecosystem •Brand •Marketing •Communication •Start-ups	Entrepreneurship	NEIGHBORHOOD CIRCLES	•Ecosystem •Celular System 3.0 (activists) •Dialogue Phases •Co-Creative Labs	•Generative brand •Engagement Platform
CALDAS	•Brand •Marketing •Interaction Platform	Territorial Technology	ECOSYSTM CO-CREATIVE LABS	•Integration Brand •Generative Brand •Parametric Design •Plataform IdeasCloud 1.0	•Living Lab's •Actvation Platform •Protocol

Source: the author

The following figure 49 presents a comparative analysis of the results and main developments of IDEAS model (R) EVOLUTION throughout the implementation of the four cases, main conclusions:

- We observe an increase of complexity troughout the cases, not only due to development of the model and new tools, also due to the project characteristics. The two final cases, Oeste Ativo and Caldas da Rainha needed: (a) cross knowledge with entrepreneurship processes; (b) technological incorporation and development focus on the co-creation challenging ideas from the involved stakeholders.
- There was a increase of results expectations due to the increase level of demand, mainly because of two reasons: (a) the commum knowledge regarding open innovation and co-creation were deeper of the two final cases; (b) there was an increase number of new actors with new roles on the process, for example entrepreneurs that wanted to strat a new business.
- The model became more holistic, meaning that the outcomes were not only connected with branding or marketing but also processes, managerial inputs and services.

Figure 49 - Overall summary - Four Cases



Source: the author

Thus, the four cases forwarded the investigator to develop three major new areas for the construction of the final model: (a) a metric system for monitoring, control and assistance to decision-making in relevant phases of the process; (b) the IDEASCLOUD platform seeking to make it more collaborative, more oriented process management and more stimulating dialogue among stakeholders and the community; (c) to create an operations manual protocols focused on recruiting stakeholders and definition of roles and tasks between the multidisciplinary team project between representatives of the organization and IDEAS (R) EVOLUTION.

5.2.1 Working Research Methods Improvements

During the continuous bibliographic review, complementary research methods and studies were revised and adapted to the thesis research design and strategy. The main purpose was to have a better and deeper research model in order to fulfill one of the research objectives: to have more scientific validated empirical data to enrich the design thinking for innovative approach either on the scientific community and business managers:

A. Quali-Quanti Mixed Methods

Mix methods have been depicted as the "third methodological development" (after qualitatively and quantitatively arranged methodologies) (Teddlie and Tashakkori, 2003). Numerous portrayals of mix methods place it in the connection of more settled customs, reprimanding some for being excessively divisive by artificially emphasizing g contrasts, particularly the "incompatibility thesis" (Howe, 1988) that quantitative and qualitative ideal models "can't and ought not be blended" (Johnson and Onwuegbuzie, 2004). Rather, they are advocates of logic, in which "what is most essential is the examination inquiry research routines ought to take after exploration addresses in a way that presents the ideal opportunity to get helpful replies" (Johnson and Onwueghuzie, 2004).

Creswell et al. (2007) describe a diverse methods research as follows as a mixed methods study includes the accumulation or investigation of both quantitative and/or qualitative information in a solitary study in which the information are gathered simultaneously or successively, are given a necessity, and include the coordination of the information at one or more stages in the researching procedure (Creswell et al, 2003).

This is recognized from multi-system approaches (Campbell and Fiske, 1959), which may incorporate numerous quantitative or qualitative studies yet not so much both. Taking into account choices with respect to the arrangement of information accumulation, relative necessity, and stage at which mix of quantitative and qualitative segments happens, Creswell et al. recognize four essential mixed techniques and outlines (Creswell and Plano Clark, 2007):

- Triangulation Designs - The term triangulation in research was initially utilized by Denzin (1978) to explain uniting reciprocal strategies or information sources to counterbalance shortcomings in each. Information are gathered simultaneously in one stage, and elucidation includes contrasting the aftereffects of each with best comprehend the research question (Creswell and Plano Clark, 2007; Morse, 1991).
- Embedded Designs - Embedded designs are not recognized by the simultaneous or successive nature of data accumulation (either is permitted). Rather, one sort of information takes a supplemental part to the next. Creswell and Plano Clark offer the standard that a study is implanted if the auxiliary information are not helpful or serious without the essential study (2007).
- Explanatory Designs - these plans or designs are described by a beginning and broad quantitative stage based upon by a resulting qualitative stage. More often than not, the qualitative results serve to clarify the quantitative results. Integration happens between stages, as the quantitative comes about regularly educate the inquiries or inspecting in the second stage (Creswell and Plano Clark, 2007; Creswell et al., 2003).

- Exploratory Designs - Exploratory plans or designs start with an essential qualitative stage, and afterward the discoveries are accepted or generally educated by quantitative results. This methodology is typically utilized to create an institutionalized (quantitative) instrument in a moderately unstudied range. The qualitative stage distinguishes paramount elements, while the quantitative stage applies them to a bigger and/or more various specimens (Creswell and Plano Clark, 2007).
- "Quantitating" Qualitative Data - An alternate exceptionally imperative pattern in training research includes converting qualitative practices or work items into quantitative information for factual dissection. Teddlie and Tashakkori (2003) credit Miles and Huberman (1994) for the term and idea of "quantitating" to change over qualitative information into numerical codes. Sandelowski (2003) portrays this procedure in more prominent subtle element, and, in addition, it is less normal simple of "qualitizing" quantitative data.

B. Mixed methods evaluation criteria

Piano and Clark Creswell (2007) initially evaluated qualitative and quantitative criteria, then list four criterion for reviewing mixed methods researches:

- Whether the research is in reality mixed methods (gathering, examining and blending qualitative and quantitative methodologies). The most comprehensive definitions take into consideration representation of quantitative and qualitative viewpoints in no less than one of: information accumulation, information examination, or hypothetical point of view.
- Explanation and steady in portraying the configuration, hypothetical or theoretical viewpoint, requirement for both quantitative and qualitative methodologies, and how the two parts are blended. Itemized quantitative and qualitative systems ought to be portrayed, and consecutive or simultaneous information accumulation and examination. Elucidations ought to be safeguarded.
- Incorporation of latest mixed method characteristics, including (a) detailed sort of configuration, (b) a visual chart of the systems; (c) blended strategies reason explanation, research inquiry and information examination, and (d) reference of blended techniques studies and methodological articles.
- Affect-ability to the difficulties of utilizing the blended routines outline. Creators ought to recognize the difficulties and how they are tended to. Particular difficulties incorporate dangers to legitimacy, for example, inspecting, specimen sizes, and combination stages.

This mixed method become of crucial importance to the IDEAS(R)EVOLUTION overall methodology. It is one of the five drivers regarding the methodology evolution and accomplishment of the research objectives: that IDEAS(R)EVOLUTION becomes a scientific valid based improve towards design thinking for innovative approaches. In the present study, the final case study of EDP – User centered innovation program, the researcher adapted the exploratory design option.

C. Living Labs

Living Labs (LL) aims to bring laboratory experimentation to real life environments with the belief that this will provide improved insights into solution validity and product usefulness, while at the same time, surfacing new and unexpected patterns of users and user groups. Living Labs have diverse origins and come from a variety of traditions. Most of the existing Living Labs have their origin either in academic research groups or in cities/regions, which promoted and foster innovation in their territory. The origins of Living Labs provide us with the first clue to the nature of their preferred methods. Many times, Living Labs with an academic origin are more prone to use quantitative methods (quasi-experimental and process research), whereas the ones originating from regional innovation endeavors use more qualitative methods (focus groups, interviews, ethnography).

In most of the cases the European Living Labs are public-private partnership institutions, which were adapted for IDEAS(R)EVOLUTION development, which can be characterized as follows:

- **Multi-Stakeholder** - Different performing persons take an interest the whole time: inner stakeholders and outside, for example, the educated community, industry, governments, accomplices and clients. Additionally, they do it on a generally equivalent premise.
- **Multi-Context** - Conversely with customary techniques for acceptance where you try to disconnect the analysis in a solitary connection, making a "laboratory" experimenting by following strict controls. The point is to catch the interrelations between various settings in genuine with lower levels of exploratory control. The six careful investigations actualize are from distinctive connections: domains, organizations, social foundations, systems and individuals groups.
- **Feedback** - It is not about acquiring information that will be utilized a while later to approve an examination, however to embed the clients in the experimentation handle in a manifestation of dynamic or activity research.
- **Creating synergies** - IDEAS(R)EVOLUTION methodology aims to be an enabler, facilitator regarding the collaborations platforms between all involved stakeholders (individual, governmental and institutional) creating the synergies to enhance the existing innovation potential.

- **Longevity** - IDEAS(R)EVOLUTION methodology keep going past the lifespan of a solitary extend and give an intends to engender learning past ventures in a more steady framework, enabling the incorporation of the principles and processes into the organizations DNA.

In contrast to traditional experimental sciences, Living Labs situate experimentation in multiple and context rich environments, trying to achieve a high degree of observation (Ballon et al, 2005). Consequently, the purpose is not to try to understand causal relationships, refute hypotheses, or validate theoretical propositions. Rather, the aim is somewhat more exploratory and explanatory; to understand how a product or service is adopted and used and how it's meaning is socially constructed in different contexts. As such, Living Labs offer a new type of service that differentiates itself from both marketing validation exercises, where final products, not prototypes are involved, and usability analysis, where only a few users in control contexts are involved (Mateus et al, 2013).

Living Labs are very dependent on well-referred to qualitative research techniques, for example, careful investigations, ethnography, movement research, semi trial and procedure research plans. Moreover, recent advances in technology and automated data registration allow hybrid qualitative and quantitative techniques that merge ethnographic techniques with quasi experimental variance analyses as well as exploratory data analysis (e.g. Data mining). One factor that is evident is that where traditional confirmatory research (statistical induction, hypothesis refutation) seeks to identify means and variances in large samples, thereby suppressing outliers and cases which are not indicative of the causal relationship of interest, Living Labs have often assumed an orthogonal, of not opposites purpose. Outliers and anomalies are of great interest as serendipitous sources of creativity and innovation (Mateus et al, 2013).

D. Process Research

Various researchers from different fields have used process research. Sminia (2007) identified the most relevant theoretical contributions that use process research, selecting the followings: the tracking strategy approach from Mintzberg, H., and the conceptualism approach to the study of strategy formation from Pettigrew, A., the Minnesota studies in innovation and change from Van de Ven, A. and finally some studies on the process of technological change coming from Barley. S., Leonard-Barton, D. and Orlikowski, W. Thus, process research is not a new technique and has contributed to the development of different management theories. Following, we explain what process research is, how to formulate a research plan and how to analyze and measure process data.

Van de Ven (1982) explains that processes are:

- A logic used to clarify a causal relationship in a difference hypothesis of the theory;

- A class of ideas that allude to movements of people or associations;
- A grouping of occasions that depicts how things change about whether;
- A recorded formative viewpoint, which concentrates on the groupings of occurrences, exercises, and activity unfolding eventually.

Process research could be defined as "an explanation of an observed progression of change events in terms of generating mechanisms that cause events to happen in the world and the circumstances when they operate" (Tsoukas, 1989).

It aims to expose changes in patterns in some process such as changing or decision making, to measure variations in some process such as incremental and revolutionary and finally to expose variations in some outcome linked to patterns of context and action (Poole, Van de Ven, Dooley, & Holmes, 2000).

The following part experiences the operational issues and choices included in planning methodology models. The issues laid out here include (see figura 50): clearing up the implications and hypotheses of methodology, outlining field studies to address procedure inquiries, watching and gathering information about methodology occasions about whether and the examination of the gathered information. The accompanying part is partitioned in two parts the plan of the research plan and the estimation, and examination of methodology information.

Figure 50 - Working Research Strategy

MIXED METHODS	QUALITATIVE QUANTITATIVE	Exploratory design
LIVING LABS	REAL-LIFE CONTEXT EXPERIMENTATION	Multi-stakeholders Multi-context Feedback Creating Sinergies Longevity
PROCESS RESEARCH	OBSERVED PROGRESS OF CHANGE	Research plan Measuring process

Source – the author

5.3 Ideas(R)Evolution – Methodology

After a thorough analysis of the four case studies we conducted a new literature review stimulated by the new working research questions aroused. The researcher produced the necessary evolutions and major changes to the pre-model. These changes include all the knowledge acquired in previous cases,

which led to a better systematization of processes and the creation of new models and tools that are now presented. Also the researcher conducted an specific bibliographic review and benchmarking research about design thinking techniques, tools and models used in others design thinking innovation processes (see annex 1).

Time and space dimensions are important because they always place our work into context. (…) "*When an approaching changes in these turbulent times, don't go searching for a change specialist. What you need are leaders with a strong plan for how the company is going to survive today and succeed in the future-leaders who can communicate the first few steps on the path forward and rally employees, customers, and partners to work together in making the tough decisions and taking the steps needed. Success will depend on leaders who are able to stabilize the company as they identify and exploit opportunities, find new market niches, create innovative new offerings, and restructure and reposition*" (Applegate, 2009).

The world is complex! Since the beginning of the XXI Century that marked changes they see occurring in various areas of knowledge and learning. By analyzing the current society and observing our surroundings carefully, it is concluded that occur sharp and severe changes in the social and cultural context. We live in a time of expectations, crises, transformation and new designs. Environmental, economic, social and cultural changes profoundly affect the individual who is going through a crisis of values and individuality, disturb and confuse the whole society (Lipovetsky, 2004; Pink, 2006; Wieviorks, 2010). Thus, it is evident a fleeting change and the urgency of restructuring the socio-cultural and economical operation, in which the recovery of the individual does express (Lipovetsky, 2004; Pink, 2006; Wieviorks, 2010).

Developing new products, new services, the right branding and communication program or a new territorial innovation strategy it's now a daze a complex process (Mateus et al, 2013). There are too many inputs, a big flow of information, amazing ability to data gathering, too many people to "listen" to, a enormous amount of new ideas to process. According to Best (2012), organizational systems and emerging alternative processes give us some clues as to where we're going and how things will look in the future. They tend to be based around ideas of a greater sense of community and responsibility towards the environment and society; greater transparency (Gerzema, 2011) and a more active participation in politics and the economy demand, a greater familiarity with the use of technology tools that enable people to connect, share, collaborate and communicate in new ways, and to be heard (Leafbeatter, 2011; Botsman, 2012; Tapscott, 2013; Kotler, 2010; Aaker, 2010).

A major factor in the current era of information relates precisely to the concept of experience (Goleman, 2006; Kahneman, 2010). Consumers know what they need and why they need, trying to put the focus on the relationship service / consumer and not so much on the product itself. Consequently,

economic, technological and social interconnection, we are witnessing a dramatic change in the role of consumers from passive beings and isolated in society for active people (Gerzema, 2011) and connected with each other and with organizations.

As stated by Kotler (2010) "in the participation age, people create news, share ideas and entertainment, as well as consumption. The new wave of technology allows people to move from consumers to prosumers (Toffler, 2007).

5.3.1 Ideas(R)evolution Conceptual Model

At this stage of the thesis “constructo”, meaning conceptual model to be tested and validated in a final case - EDP, IDEAS(R)EVOLUTION is an integrated approach of a simplified R&D+i programe, for the development of territories and entreprises – mainly SMEs with a low or intermediate level of technology and knowledge – that introduces a new innovation system and new creative working methods for the sustainable development and competitiveness through open innovation based on the interconnection of management, design, marketing and creative Intelligence focused in Co-creation and Dialogue. It is a holistic multidimensional innovation “simplifier system”, IT enabled. Our blueprint and operational flow is set to simplify complexity (Maeda, 2006; Norman, 2011; Collison & Jay, 2012) for all Organizations, from business companies to institutional structures as well as territories.

The full methodology blueprint (figures 51 and 52) consists on:

A - STAGES - 6 Main stages: Involvement, Inspiration, Ideation, Integration, Implementation and Interaction:

- **Involvement** - the main objective is to produce the initial diagnostic of the organization and to leverage the creative process through the increasing of stakeholder knowledge about Design Thinking, creative techniques to increase their willingness for creative process and information searching. This phase is particularly constraints free, where all ideas and opinions are important. We strongly advise that, due to these workshops characteristics, chaotic and emotional driven; it requires special leading efforts from the project team leader. We found, from the pre-experimental cases, that is very important to explain in detail to the stakeholders the full project vision, process and reason why is crucial to build a playfulness mindset since the beginning of the model appliance. The Leader and facilitation team must create the “chaotic and non sense” working environment and mindset to allow ideas to flow with no constraints and no previous stereotypes or pre-conceived dogmas.
- **Inspiration** - the main objective is to search for information, to contextualize aiming to define the Design of Innovation Challenge. We want to understand the current situation and predict trends, the evolution of behaviors, in macro and micro level of the

organization surroundings, of the people and the market; To achieve this, ethnographic observation research methods and User Centered Design approach are used. It is also important to train the stakeholders to be confortable with sharing and "bring new ideas or topics to the table". Those ideas will feed the workshops of the next stages. For this stage, regarding the IDEAS(R)EVOLUTION team, it is important to reduce constraints in order to promote a "open and sharing" dynamics for the group and to listen, talk and discuss about all subjects. The workshop leader and the team should have an observer mind-set, close to the stakeholders, in order to obtain as many information possible and deconstructing their way of thinking to obtain deep information about the context and the organization.

- **Ideation** - is defined by a deep search for solutions through creative, divergence-convergence-select and filter logics and sequences. Is mainly characterized by brainstorm tools, scenario building and creative frameworks preparing the concepts or ideas for materialization and strategy building. The workshop leader and the team must have a Designer and system thinker mind-set with capabilities to build connection between ideas, constantly searching for solutions and possible connection in stakeholder's participations and opinions and constantly search for useful solutions for the proposed challenges.
- **Integration** - the main objective is to experiment and to model the ideation filtered ideas, to validate, improve and systematize for the delineation of strategy and the further integration in organization. This stage it is also very important regarding the final ideas validation "outside" the group stakeholders in two ways: (a) inside the organization, presenting the final ideas to others internal collaborations and asking for perception and feedback; (b) using today's online collaborative and community platforms or IDEASCLOUD, to ask feedback and defining perceived value of each of the final ideas all the online external members. For these workshops the leader and the team must have a strong capability to create interconnections between ideas and a strong mind-set for strategic structuring as well as a psychologist mind-set to help the group to search for consensus, obtain feedback and get a more consensual point of view. Although, they must be capable to systematize and synthesize the ideas that come from previous into a innovation strategy defining a new focus.
- **Implementation** – the main objective is to pre-test the final idea, fine-tune the idea holistically and to define the go-to-the-market strategy. This stages uses the living lab methodologies focused on proof of concept and technology testing and marketing

research techniques and consumer behavior to define the product, service or innovation implementation strategy. For this workshops leader and the team must have a marketing and management mind-set, pragmatic but completely open to possible contributions. They must be able to develop market orientation strategies focused on information given in previous workshops managing them to create a coherent strategy.

- **Interaction** – it is focused on defining dissemination and dialogue strategies, network creation, information sharing among consumers and interaction measurement. For this workshops leader and the team must have a social agent and a network creator mind-set. They must be able to have a fluid and spontaneous speech to attract people to the resultant ideas. They should develop intelligent connection networks to disseminate innovation, strategically and integrated oriented approach digital and non-digital platforms, and ways can get to easily and quickly spread and communicate the innovation.

B - PHASES - 11 Sequential phases: Diagnostic, Preparation, Observation, Understand, Define, Ideate, Experiment, Validate, Sistematize, Test, Dialogue:

- **Diagnostic** - aims define the initial organization challenges and to audit the project starting point. Defines the where we are question. It is also useful to identity the internal top and middle management stakeholders that we asked to join the innovation process and implementation. By informal interviewing the organization different layers, it is also relevant the identification of internal organizational gap's, innovation enablers and blockers and the dominant culture.
- **Preparation -** aims to identify stakeholder's profiles according with their personalities, creative capacities in search of the most fitted group dynamic for the innovation and creative process. In this phase stakeholders must be unlocked, using the tools provided, to creative process appealing to their senses and motivating them through Sensorial Gym.
- **Observation -** aims to lead an observation and analyses of the entire surrounding context, internal and external, as well as feeling the "territory" with observation techniques to retrieve useful information for the innovation challenge about people, territory, local, culture and products. In this phase we ask people to "to put themselves in other's shoes" seeing the "others" own reality and perception of the world.
- **Understand -** is focused on the interpretation of all the information from the previous stages and observations in order to define and identify information flows, the micro and macro contexts, clustering information and define major innovation paths.

- **Define -** is the problem or challenge definition phase. Based on the observation experience and understanding about the obtain information, defining a concrete challenge that the innovation ideation phase must give solutions and answers. Using the "What if" or "how could we" questions we target to give a focus to the innovation effort.
- **Ideate -** aims to create and develop as many ideas and insights as possible or generate new ones from lateral thinking techniques. It pretends to create ideas cycle and diverge in the searching for new and innovative approaches by a set of divergence and convergence techniques, selection and filter, clusterization and consensus, for the identification of well-defined insights or potential solutions to the innovation challenge and goal.
- **Experiment -** aims to start the prototyping phase by turning tangible the ideas that overcome from ideation process and lead several experimentation and blueprint definition processes in order to get wider consensus, search for possible upgrades and new visions building a strategic vision above them.
- **Validate -** aims to get extended consensus from more external stakeholders running a feedback and prototype validation process via online platforms. Internally, it is important to ask feedback to other groups of collaborators from all the different areas. These processes are useful sources of improvement ideas and measures, providing the team resourceful information to make conscious decisions before create the final prototype and final strategy. It is also useful to foster the identification of strong points and improving weak ones to create an innovation attraction zone.
- **Systematize -** aims to elevate the innovation solution to a strategic thinking level. In this phase the holistic perspective is very important, the final solution must be thought and considered regarding all needed impacts on the organizational, from human resources to organizational design and production. A detailed go-to-the-market plan must be develop as well as a operational blueprint.
- **Test -** aims to develop the proof of concept tests. It is based on creating pilot real life context cases and several market tests always in a continuous dialogue with living lab users and stakeholders to obtain real time feedback and insightful user stories and experiences that will adapted to the final go-to-the-market innovative solution.
- **Dialogue -** aims to create a continuous flow of innovation and to operationalize the innovation dissemination plan as well as dialogue strategies with the consumers to generate contents, monitor interactions and evaluate the innovation implementation.

C - TOOLS - 44 different tools: Some of the IDEAS(R)EVOLUTION tools were inspired and adapted from the benchmark research conducted focused on already existing and used design thinking models and tools (see annex 1). All tools where conceived to be applied in a wallsize format to allow a better working group dynamics (4 per phase):

- *Diagnostic*: What if, Foresight, In/out Analysis and Taylor Challenges;
- *Preparation*: Sensorial Gym, Creativity by arts, Mindplay, Tests;
- *Observation:* Tell a story, Ethnography Diary, Moodboards, Cross Information;
- *Understand:* Roots, Sense of belonging, Looking lateral, Usability testing;
- *Define:* ADN, Consumer Journey, Profiling, User centered;
- *Ideate:* Brainstorming, Stations, Exploration, In/Out innovation matriz;
- *Experiment:* Sketcher, Internal Delphi, Prototiping, Storytelling;
- *Validate:* Swot, Triz, External Delphi, 360 reverse thinking;
- *Sistematize:* Creative Idea, Blueprint, Building waves, Flowcharts,
- *Test:* Role play, Diary, Living Lab, Observatory;
- *Dialogue:* On/Off, Voice Box, Networking, Equalize.

D - DERIVERABLES - 11 Deriverables (one per phase): Challenge parametrization, Group fit, Main concepts, Keywords, Context, Main Ideas, Main focus, Main Insights, Main Strategy, Finishing, Activation/go to the market.

The detailed explaination about each one of the tools and deliverables will be presented in the detailed blueprint section.

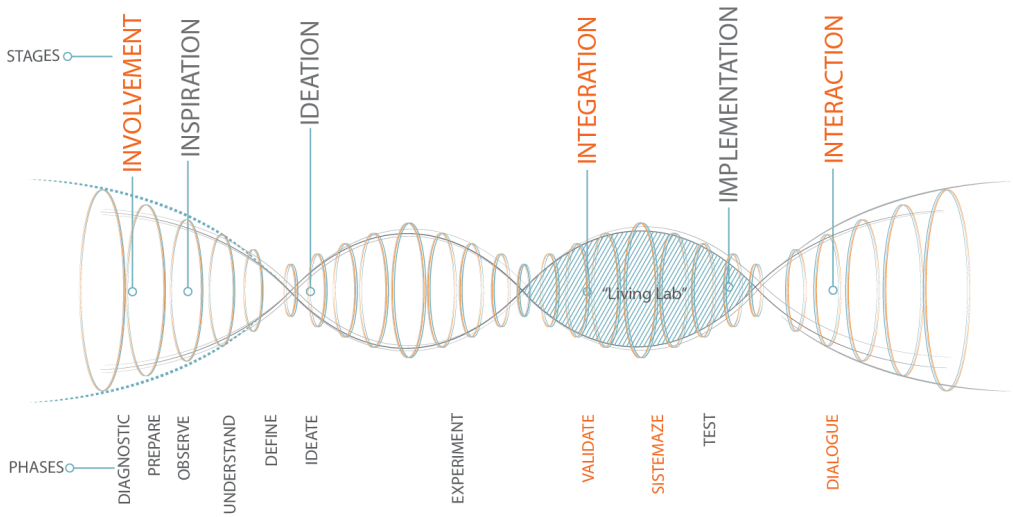
The following table 18, presents the IDEAS(R)EVOLUTION tools inspiration from the Design thinking for innovation validated tools that we benchmark. To better understand in detail each of benchmarked tool please see annex 2.

Table 18 - Crossing Ideas Tools with Benchmarking tools

Phase	Stage	IDEAS(R)EVOLUTION TOOLS	BENCHMARKING TOOLS
Involvement	Diagnostic	What If	Directed Storytelling
		Foresight	Shadowing;
		Internal and External Analysis	Photo Studies; Questionnaires; Customer Experience Audit; Diary Studies; User Journey Maps
		Taylor Challenge	Affinity Diagramming; Brainstorm Graphic Organizers
	Prepare	Creativity by Arts	Generative Research; Roleplaying
		Body and Senses Gym	Creative Toolkits; Bodystorming
		MindPlay	Generative Research;
		Tests	Interviews; Questionnaires; Stakeholder Maps
	Observe	Ethnographic Diary	Intreviews; User Journey Maps; Observation; Questionnaires; Cognitive Walkthrough; Cultural Probes
		Cross Information	Experience Sampling Method; Participant Observation; Shadowing; User Journey Maps
		MoodBoard	Photo Studies; Design Ethnography
		Tell a Story	Directed Storytelling
Inspiration	Understand	Roots	Thematic Networks; Contextual Inquiry; Personas; Picture Cards
		Sense of Belonging	Cognitive Mapping; Cultural Probes; Design Ethnography
		Usability Test	Behavioral Mapping; Cognitive Walkthrough; Creative Toolkits; Questionnaires; Speed Dating
		Looking Lateral	Competitive Testing
	Define	ADN Logo	Creative Toolkits; Bodystorming
		Consumer Journey	Design Ethnography; Questionnaires; Usability Report
		Critical Success Factors	Cognitive Mapping; Contextual Inquiry
		Profilling	Personas;
Ideation	Ideate	Brainstorming	Bodystorming; Generative Research; Picture Cards
		Exploration	Creative Toolkits
		Stations	Design Charette,Roleplaying; Speed Dating; Storyboards
		In-Out Matirx	Case Studies;
	Experiment	Sketcher	Case Studies; Creative Toolkits
		Storytelling	Storyboards;
		Internal Delphi	Questionnaires; Weighted Matrix
		Prototype	Business Origami; Design Charette; Prototyping
Integration	Validate	Swot	Cognitive Mapping;
		360º Reverse Thinking	Case Studies; Cognitive Mapping; Directed Storytelling; Personas; Value Opportunity Analysis
		External Delphi	Evaluative Research; Interviews; Weighted Matrix
		Triz	A/B Testing;
	Sistematize	Creative Idea	Cognitive Mapping; Customer Experience Audit; Storyboards
		Blueprint	Cognitive Mapping;
		Flowcharts	Scenario Description Swimlanes; Usability Report
		BMC	Business Origami; Case Studies; Value Opportunity Analysis
Implementation	Test	Living Labs	A/B Testing; Competitive Testing; Critical Incident Technique; Interviews; Prototyping; Questionnaires
		Diary	Directed Storytelling;
		Metrics Observatory	Customer Experience Audit; Evaluative Research; Weighted Matrix
		Role Play	Creative Toolkits;
Interaction	Dialogue	Syntax and Dialogue	Directed Storytelling
		Feedback	Interviews; Questionnaires; Stakeholder Maps; Questionnaires
		Networking	
		Equalize	Competitive Testing;

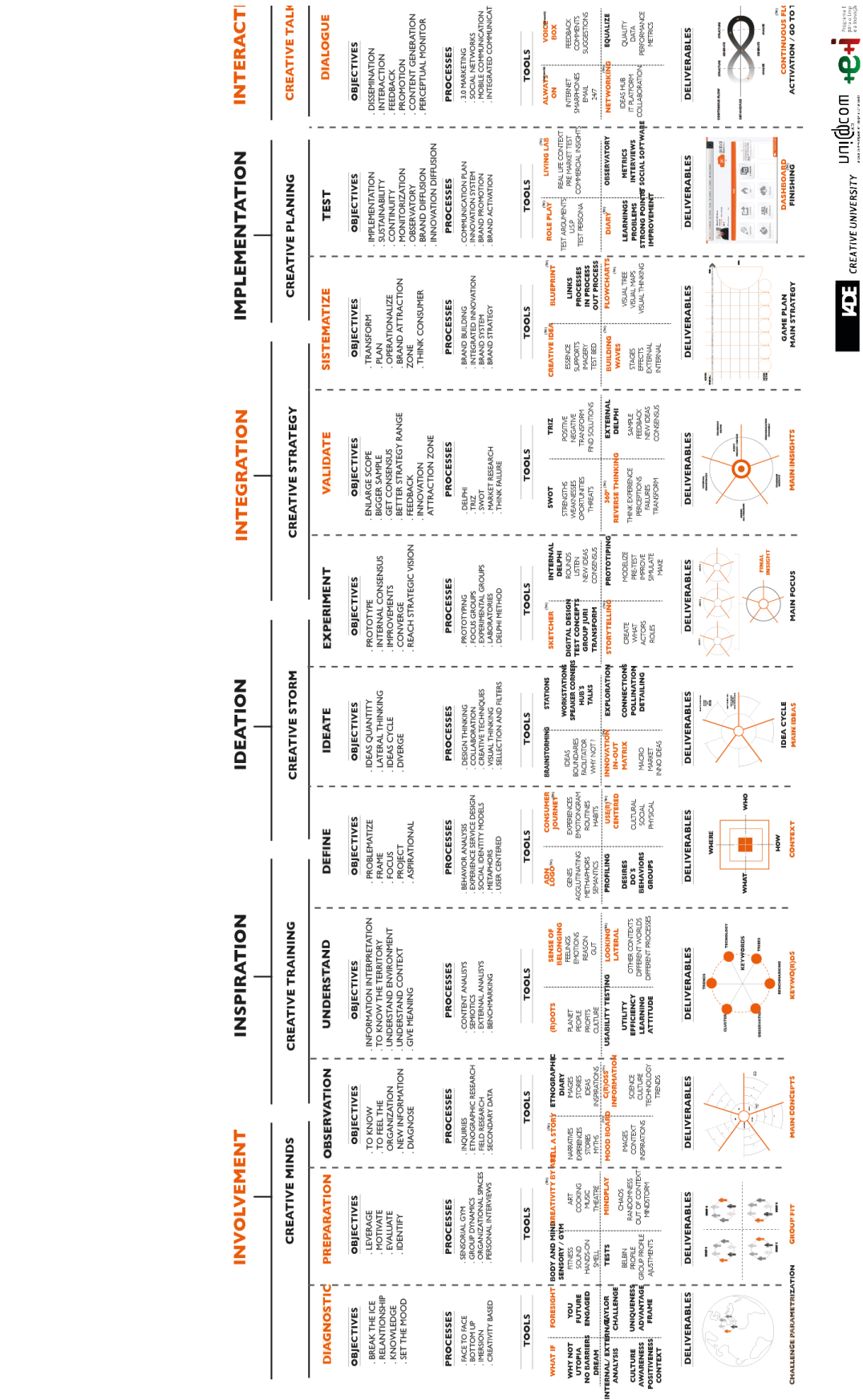
Source: the author

Figure 51 - IDEAS(R)EVOLUTION Overview



Source: Mateus et al (2013)

Figure 52 - IDEAS(R)EVOLUTION Blue Print



Source: Mateus et al (2010)

Due to the extensive field research operational models were developed and organized according to the IDEAS(R)EVOLUTION 3 types of the innovation macro process (Mateus et al, 2012; Mateus et al, 2013):

The IDEAS(R)EVOLUTION macro processes are:

- Innovation generation:
- Action Factory Model - An innovation generation modelAction Facto(R)y is the heart and the soul of IDEAS(R)EVOLUTION methodology because its actions are practice-oriented. You can only innovate when you look up for new solutions and strong ideas for the organizational practice, brand management and innovation. The goal of achieving an integrated innovation process is obtained through a strong creative and unique idea that is generated in the creative process and sequential components of the workshops held in Action.
- Innovation Management:
- Left & Right Model – Is a brand Building model applying a co-participative philosophy and involvement obtained through the group dynamics workshops of the ACTION FACTO(R)Y model divided in 3 main areas: ESSENCE, FUNCTIONAL, EMOTIONAL
- Cellular system - Is a participative governance model, composed of five operational cells: Fuel cell (system management), Regeneration cell (creation and adjustments); Dynamic cell (Knowledge creation and management); Network cell (creates and manages netwotks); Action cell (Implementation)
- Ecosystem - is a management model for the networks focused on empowering People, promoting involvement, participation and shared governance.
- Experimental labs - Is a experimental model to test ideas in real life contexts according to validate scientific methods and tools.
- Link up - is a management model for the networks. It is a Networking Aggregator for the the network of contacts and partnerships, for the technological and human base innovation resources as well as for the managing the innovation HUB or infrastructures, capable of developing and facilitating the creation of synergies between the organization and all stakeholders in a mutual participative, informative and shared knowledge manner.
- Co-living Lab - It is an experimental management model from new ideas to real-life economics, generated by experimentation, participation and testing. It creates great involvement with consumers ideas and technology, aiming at the emergent trends of open innovation, of new communication platforms, social networks and web resources.

- Digital Factory - It is a management model for innovation considering that the new communication web based platforms make available several different approaches to Design in exploratory and evolutionary manner that greatelly benefit by dialoguing with consumers and rapidilly learning and adapting to their real needs. It liberates the designer to focus more on creativity, allowing the communication platforms the quick parametrization and execution of model prototypes and of the full industrialized production process for new products more adpated and individualized to consummer desires.
- Innovation Dissemination:
- Always On model - It is a management model for the dissemination of innovation aiming at creating a continuos dialogue and constant flux of information and communication between the organization and its consumer base, generating amplified and dynamic social relational networks for the retrieving, dissemination and implementation of ideas, projects and brands.
- The Neighborhood Cycles model - is spread across the full model integrating a dynamic metric system for the performance measurements and evaluation of the service outputs. This metric quality control and feedback sytem of continuos improvement is based and available on a technological (IDEASCLOUD) platform, that aims at creating a constant interaction with consumers in dialogue with the "Tribe". This advanced platform allows the monitorization, analysis and interpretation of quantitative and qualitative data (narratives) and a full communication flow during the complete implementation process of the innovation strategic plan.
- Interactive brands - It is a mangement model for the dissemination of innovation that allows the conection of the design and the co-creative brand processes. By creating a brand identity togheter with generative and parmetrized design models it makes possible the translation of the brand values into the simbolism of the visual brand identity. On the other hand the resultant interaction trough time of these simbolic fluxes with consumers maintains the brand identity alive recombining its design in different visual forms and shapes.

IDEAS(R)EVOLUTION methodology, in its extension from A to Z, is an integrated open, innovative system in co-creation boosted by a online collaborative platform - IDEASCLOUD (*social software*) and a app mobile C4S of recruitment, learning, observation, sharing and interaction in dialogue (Mateus et al, 2013).

These applied methods involve all “live forces” from a territory as active “scientific like researchers” in real-life experiential contexts. These conjugated proceedings have very relevant implications for the organizational sustainable development programs. Its success fundamentally depends on the synchronisation of the human factors (humanware/ personalized dialogue and interaction) and of the technical elements (usability, security and reliability) supported webplatforms and applications on-line in a continuous flow of the relationship.

According to Folstad, Ebbesson, Hammer-Jakobsen and Bergvall-Kåreborn, (2011) "…collaborative activities between end-users and other stakeholders in an innovation and development process" of learning, sharing of knowledge and evaluation of products and services in real-life, thus potentiating the development stable collaborative consumer networks for the co-creation of value and organizational innovation (Følstad & Karahasanovic, 2013).

This methodological approach introduces within the enterprises a new *mindset* of pratice, creative culture, working methods and innovation in co-creation with all stakeholders for the developement and essay of products, services, brands governance models, innovation ecosystems, breaking frontiers and hierarchic links, contributing for the creation of more flexible and competitive enterprises with more added value.This approach is scientically funded in the robust methodologies of *design thinking* (Kelley 2006; Brown 2008; Martin 2009; Best, 2012), *co-creation* (Prahalad 2004, 2008; Ramaswamy & Goulliart, 2010), *branding* (Aaker 2010; Neumieyr 2010) and *service-science dominant logic* (Lusch & Vargo, 2004; Ostrom *et al.* 2010; Lusch 2011) and in the research, empirical, conceptual and experimental developed and published works of Mateus and Gomez (2009), Mateus and Rosa (2010, 2011), Mateus *et al*. (2012) and Mateus et al (2013).

IDEAS(R)EVOLUTION methodology, processes, models and tools were carefully thought and “putted on the right place, order and sequence” regarding all touchpoints and interactions between organizations and their internal and external stakeholders to help them to take full advantage of the co-creation and the open innovation paradigm we live in. The methodology is developed in a sequential process where the balance between of a set of integrated qualitative and quantitative metrics created with a logic KPI'S (continuous flow of performance indicators and innovation goals), made it’s approach in a Business Intelligence process for the organizations, strengthened by its ability to transfer knowledge.

The methodology primarily acts over the cultural background of the organizations´ employees, motivating them and preparing the development of a strong teamwork mind-set (Amabile & Kramer, 2011). It improves the internal dynamics, the collaborative processes and prepares the environment for innovation. (Brown, 2008; Amabile & Kramer, 2011). In this way the organizations focus on innovation and co-creation adapts to constant changing business environments, generating its own sustainability

(Kotter, 2012), majoring its internal resources competences and reinforcing themselves in order to survive in the present "wave of transformation" (Li, 2012) of the extremely competitive global economy.

According to this vision it can be argued that each "Territory" (i.e. organisation, region, place, brand, etc.) depends for its sustainable development on a continuous flux of innovation and creative intelligence. These innovation fluxes incrementally depend in turn of social relational networks amplified by technology and an *always on dialogue* (Solis et al, 2012). Presently consumers detain a higher decision power conferred by WOM (*word-of-mouth + word of keyboard)* and *Prosuming* (collaborative, non-remunerated work, according to Tofler, 2006), and demonstrate tribal-like behaviors socially organized by enlarging "neighborhood circles" (Godin, 2011), dependent on perceptions, attribution of value and social influence (Ajzen e Fishbein, 2005). Thus, organizations (brands) in order not to lose its "attract power" (i.e.to confer identification, prestige and trust) in view of "consumer tribes" (i.e .clients) establish with these a continuous dialogue (24/7) and became *Always On connected with the Tribe* (Rosa, 2011), mainly through multichannel platforms of activation for innovation and sharing of creative intelligence (Mateus *et al*., 2011; 2012).

The main goal of the IDEAS(R)EVOLUTION methodology is therefore to develop a creative culture and intelligence and innovation in the territories, organizations and individuals. All working stages converge in a set of results that involve and compromise all internal and external (*stakeholders*). It aims that innovation involves all parties in a pro-active behavior that contributes and supports for the strategic decision making and operational taking processes. Stakeholders are involved not in with organizing emergent needs, but also actively participate and collaborate in its development projects and the co-creation of value.

The differentiation factors of the IDEAS(R)EVOLUTION methodology depends, besides the Co-creative processes on its base, on a set of systems, processes and additional innovative applications: (1) a longitudinal metric control and adjustment system based on key-performance indicators (KPIs) available in real-time and deferred-time; (2) an original *social software* (*Ideas Cloud*) for sharing, learning and interaction in dialogue; (3) a *Living Lab* network - *Living Hub* - , that is an *essay consumption and usability bank* of products and services for validation of proposal in real-life context; (4) a real-time system for *Citizens4Science* (*C4S app mobile*) for the selection, recruitment, sharing and interaction of consumers, allowing the incorporation of anthropological observation and ethnographic ideation into the research, essay and development process.

The critical differentiation of the IDEAS(R)EVOLUTION methodology resides in the original combinatory found, adjusted, validated and parameterizable for each project case based on the

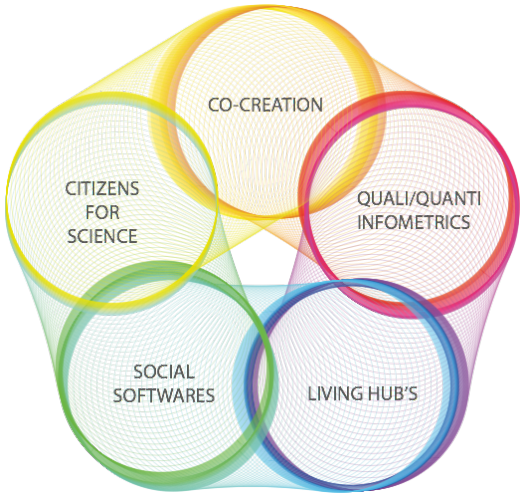
conjugation of the five methodological action pillars.As stated, being a scientific based research project, IDEAS(R)EVOLUTION developed an extensive battery of quali-quanti methods to fully measure the process, the ideas and the innovation outcomes (see figure 52):

- KPI'S - Key performance indicators (Parmenter, 2007) were designed along the sequence of 6 stages of IDEAS(R)EVOLUTION methodology application in order to produce the necessary data to enable the decision making processes needed along the process, to provide control and go-no go moments.
- LEVELS CLUSTERING – Micro:Each of the 44 tools was conceived in a diverge-converge philosophy trough selecting information, filtering and connecting and final consensus sequence of the ideas worked on the tool appliance. Macro: by this method all the 11 phase deriverables are also generated obtaining the co-creation group final consensus in each phase. The reached consensus on each of the phases is the initial information to start the next stage work.
- CONSENSUS - Internal and external DELPHI method is applied in 3 rounds to validate the stakeholders ideas potential between the co-creation group and with external groups also to obtain more feedback and new external ideas and inputs towards the innovation development. This published and validated model (Mateus et all, 2010) is adapted from the original DELPHI research model (Dalkey and Helmer,1963)
- QUALITY AND SATISFACTION - All physical and virtual workshops are measure regarding technical quality, stakeholders emotional engagement and self-expression of ideas produced. This published proposed model (Mateus et al, 2013) was developed based on the SERVQAL model (Parasuraman et al, 1984) and on the always on service quality monitor research developed (Rosa, 2013).
- CREATIVITY POTENTIAL – to help on the go-no go decision making, critical moments regarding the choice of final set of selected ideas produce, the Creative GAP evaluation tool was developed. It introduces the Ideas evaluation trough a GAP analysis between: (a) International Panel of researchers, (b) international panel of Experts, (c) international panel of consumer representatives. This model (Christiaans, 2002) was adapted by the author (Mateus, 2009) and it is based on 5 dimensions of analysis: novely, attractiveness, technical interest, meaning and creativity. It is based on perception and cognition and mainly is analysis the gap between intended and perceived creativity.
- LIVING HUB – This research model is based on the potential of the internet as a collaborative and participative research channel where one and implement and manage different active research groups simultaneously (e.g Innocentive). Already published

(Mateus et al, 2013) its adapted from the concept of LIVING LABS was originated at the Massachusetts Institute of Technology (MIT) by Prof. William J Mitchell. The Living Lab has the endeavour to support the innovation process for all involved stakeholders, from manufacturers to end-users with special attention to SMEs, with the potential users in the centre in their real world context (Stahlbrost and Holst, 2012). For IDEAS(R)EVOLUTION the goal is either confirmatory or exploratory; whether the experiment seeks to minimize unexplained variance or embrace it as a source of new knowledge and innovation. The key principles are: (a) Understand and define consumer value, (b) Understand the influence drivers, (c) Understand the sustainability mindset and frame, (d) to create openess and multi-stakehoder participation, (e) to obtain feedback from real life context and usage of the innovation ideas and prototypes. Additionally, the Living Lab's innovation approach offers a systemic perspective where all the actors of the value chain participate: academia, governments, companies and citizens (Almirall & Tejeda, 2009) and allows to identify at an early stage the emergence of new attitudes, behaviours and user patterns of consumption (*consumer trends*), (Molinari, 2012).

- CITIZENS FOR SCIENCE- IDEAS(R)EVOLUTION *mobile app C4S* **–** it is a downloadable application that allows to select, recruit and obtain the compromise of consumers, actively e*mpowering* them as "scientific researchers" in real-life presential contexts as well as in virtual contexts (at a distance) for the collection and sharing of data, information and experience narratives and feedbacks with innovative products and services developed. It is based on the vision of authors such as Cooper et al. (2007) distinguish between the citizen science model and the participatory action research model, also "Citizen Science" is a way of organizing the design for collaborative scientific research involving scientists and volunteers "users" for whom the use of interaction modules based on the internet allows "a massive virtual collaboration of thousands of participants ... "(Wiggins and Crowson, 2010). The "Citizen Science" also provides informal learning experiences that have improved the knowledge of the participants (Krasny and Bonney, 2005, Evans et al. 2005). It is a operational research and metric tool to measure stakeholder engagement trough real activity and involvement with the research tasks.

Figure 53 - IDEAS(R)VOLUTION Methodology Drivers



Source: Mateus et al (2013)

5.3.2 Ideas (R)Evolution Metrics and KPIs

One of the critical initial questions and objectives for this research was to develop a metric system for the design thinking approachs to innovation. The researcher strongly believe that this point its crucial to achieve the purpose of giving more scientificity to the final model of IDEAS(R)EVOLUTION. We will know present the metric philosophy and operational blueprint.

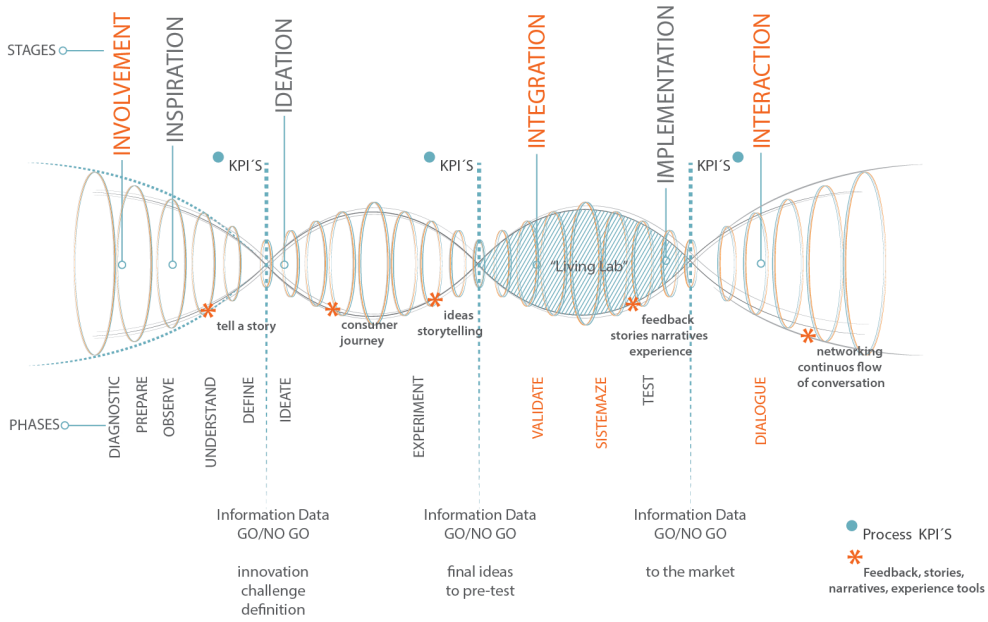
5.3.2.1 Metric System design and blueprint

The metric philosophy chosen to be applied is a key factor to control performance and measure and improve innovation results. The innovation system is based on micro and macro key performance indicators (KPIs) according to a blended metrics system.

Being Ideas(R)Evolution a methodological approach for a complete holistic system of co-creation for innovation and creative intelligence (R&D+i) aimed at the sustainable development of territories and organizations, it is, so far, composed by a sequence of six Milestones (macro level), and eleven operational steps (micro level), 44 tools (stimulus) and eleven applications.

Each stage (milestones and steps) works according to a continuum based on a *"dynamic funnel"* philosophy (from macro to micro) to obtain, filter, select and cluster ideas, establish connections, test and ordinate/select preferences (by voting) among these constructs, and then integrate and systematize them (e.g. visual mapping) and obtain a finally consensus of all participants. The fact that the system is perfectly designed and structured allowed the research to define clear key perfomance indicators along the process (see figure 54).

Figure 54 - Metrics System Diagram



Source: Mateus et al (2014)

This full-process is measured in a continuous quali-quanti workflow, by macro and micro objective and subjective indicators (KPIs) - and textual expressions and anthropological evidences (life stories and experiences) gathered by the participants - which are therefore related with each other on each stage/step and are analyzed (by contents analysis), and evaluated (rated) according to the gap calculated by the difference between an expected baseline value and the real value measured. The differences calculated between these two values (Gaps) supplies the performance measurement separately for each the stage, and by adding all KPI Gaps for the global process. Each stage is established with an initial baseline, a KPI performance objective (i.e. in Ideation the number of ideas generated, etc), and measured after its application thus a the final value is obtained.

The equation algorithm for the performance metric is given by: KPI baseline (expected) minus KPI obtained.

The complete set of measures are a summated scales averaged index of all indicators gaps (baseline minus real values) according to the following equation:

Kpi PGI (Performance Gap Index)= Kpi1 + kpi2 +...kpin /N

According to the system full process the KPI for each stage is based on tree sort of measurements based on interaction observations and personal self-administrated questionnaires evaluating: (1)

technical quality and self-expressive aspects; (2) General Satisfaction, Recommendation and Emotional states after the experience; (3) the level of consensus obtained.

5.3.2.2 System Processes and Procedures

We now present the designed macro and micro processes (see figure 55):

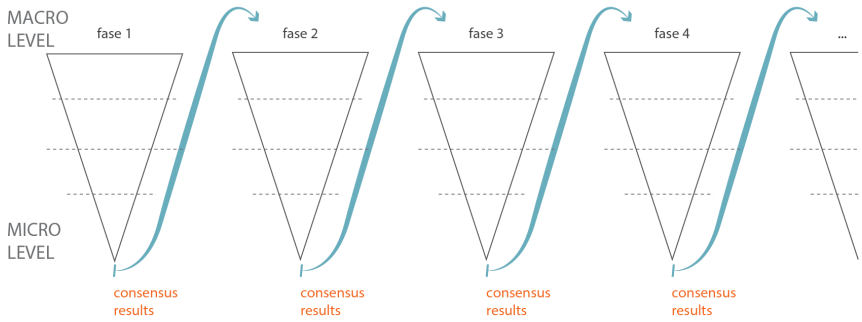
A- Macro Processes/ Information Flow

The Macro processes are composed by the full set of sequences of micro processes for each stage and the aggregation of all stages that generate a final continuous flow of information. The consensus generated produces a final result (*deliverables report*) in each stage that will be used to start the next stage, with its own set of tools and micro processes, an so fort, leading to the accomplishment of the total methodological flow of information generation thus the final result of the innovation process.

B- Micro Process – Consensus generation

Regarding the methodology´s eleven sequential micro processes applied according to a "*dynamic funnel*" philosophy, each sequential micro process and tools (stimulus) are chosen for each project (innovation challenge)and applied for information generation and discussion using divergent and convergent thinking techniques and are constantly *clustered* by the participants in order to obtain consensus. First the participants, organized in small groups of no more than 5 people each, start using divergent thinking to obtain as many ideas, concepts and insights as possible about the problem/case in hand. Secondly, using convergent thinking, they tag and "clusterize" the resultant constructs, reducing the information to common categories until reaching an acceptable agreement between all participants. The third sequence is accomplished by the creation of logical hypotheses and links, by identification of cross connections and dependences between the clusters reaching a final consensus about the information thus obtained.

Figure 55 – Dynamic funnel - Continuous Metric System



Source: Mateus et al (2014)

As regards the measures still within the dynamic funnel concept:

Measures

A- Macro- The full set of results for each stage (milestone) generates a consensus and performance evaluation (e.g. deviation KPI Gap from baseline) thus generating the PGI (performance gap Index).

B- Micro- Measures of the results for each step calculates a performance deviation from baseline (KPI Gap) that allows for a continuous control, adjustment and performance improvement after each event.

As regards the instruments and measurement scales used on the questionnaires:

Instruments and measurement scales

So far the full set of instruments validated are:

- Evaluation Ratings for importance attributed to inputs: ideas, concepts and visual stimulus/evidences (self-administrated rating scales);
- Emotional state and degree of feeling (based on Ekman face typology);
- Self-expression and Technical quality evaluation (self-administered evaluation questionnaire);
- General satisfaction with the participation and recommendation (self-administered evaluation questionnaire);
- Attitude and life-styles towards environment (self-administered evaluation questionnaire);
- Consensus and contradictory problem solving voting (Dephi and Triz matrix formularies);
- Open ended quizzes for information and opinion gathering (short open quiz-fields in IDEAS CLOUD for free text and multimedia evidences uploads/downloads).

The Integrated Metric System will be a tool to support the management IDEAS(R)EVOLUTION activity. The planning, implementation and monitoring of actions triggered interaction and communication, internally and externally, will be activated in the system by the actors of each action. This system is supported by two main functions: (a) telecommunication and web and F2F interaction with users and stakeholders, and (b) data analysis, deviations and alerts.

The main objective is to provide, in real-time, a systematization of information for each project / action ongoing, with features of management (recurrent parametrization), quality and process indicators within the overall performance control. All projects must be assigned performance targets as a specific

baseline set of objectives for each stage (i.e the minimum number of ideas/concepts or clusters to generate should = 10 , etc, etc), and simularly for the full process.

5.3.2.3 Quality Control

The full methodological process must be continuously controlled in order to evaluate performance quality of the work accomplished. It is important to sequentially demonstrate and control the system results compared with previously defined performance "ideal" conformities (baseline) to a better performance achievement, a more correct parameterization and development of all stages of the innovation process.

Each of the major process operators must be permanently subjected to the quality control measurement system, as follows:

Consultants and IDEAS(R)EVOLUTION Operators

This is an important quality control process for the strategic and tactical parametrization of all project challenges. The metric system implemented will allow the consultant and IDEAS(R)EVOLUTION operator to an implementation control and the ability to continuous adjust performance deviations. Operators are supplied with a broader monitorization (baseline-sheets book) of all process with constant methodological adjustment (re-parametrization) possibilities for each specific case as well as a constant improvement of achieved results and methods applied. The major quality indicators for this target are the KPI measurement and satisfaction surveys collect in the interactions (workshops and IdeasCloud platform).

Reporting system

Engagement and stakeholder's skills and input measurement. As important as controlling the project development is the measurement of the engagement degree of all stakeholders, as well as their technical ability demonstrated. It aims to know and constantly adjust the process, the tools and the participants final approach in order to achieve optimal performance. The major quality indicators are the evaluation, attitude, emotional sate and satisfaction and recommendation questionnaires, the quizzes for qualitative texts and multimedia evidences and the ideas rating rankings.

Innovation potential measurement

As important as controlling the project development is measuring quality of the engagement/ involvement of stakeholders as well as the technical ability perceived. It aims to reveal and to constantly adjust (re-parameterize) the processes, the tools or the stakeholders approach to achieve a better performance. The major quality indicators are the evaluation, attitude, emotional sate and satisfaction and

recommendation questionnaires, the quizzes for qualitative texts and multimedia evidences and the ideas rating rankings.

Results Analysis and Visualization

The results and reporting follows the same *dynamic funnel* philosophy as a sequence of processes of collection, filtering, linkage and consensus, which are analyzed and visualized according to the following cascade of technical maneuvers and synthetic reports:

1.Cross Coding- It is related to a cross qualitative contents analysis (key wording and categorization techniques) of field results materials (wall size tools/stimulus, video and audio tapes and external information provided from observers)

2.Contrasts- The contrasts analysis are related to placing in opposed fields the positive and the negative aspects of the information gathered, thus allowing for a revealing comparison of the perceptions of the participants about the case in hand.

3.Matrixes- The matrixes are an important and easy technique to synthetize and show the results obtained allowing revealing interpretations and production of the innovation axis.

4.Visual Analysis- The visual analysis use metaphors and visual semantics to present the results of the interactions.

5. Results presentation- The presentation of results - depending on the typology and specification of each projects challenge – will be presented according to several visual templates and maps in a simple and intuitive way.

5.1.-Neuronal Networks- Based on visual design techniques presents the results in neuronal networks. Maps for resuming the insights, ideas, clusters and information fluxes obtained. It is a simple and intuitive way of showing results based on visual design philosophies to expose insights, ideas and the clusterization and information fluxes. Neuronal networks are often organized to show a set of ideas ant the way they are interconnected. The thematic networks are step-by-step process that identify, organize, and connect the most common themes in rich, qualitative data. Thematic network analysis analyze textual data using a formulaic, step-by-step methodology to summarize the themes by constituting a piece of text and organizes the information into a weblike illustration (Toulmin, 1958; Attride-Stirling, 2001). Both neuronal networks and thematic networks are visual bases ways of showing results and interconnections.

5.2.-Word Cloud Tags- Word clouds are a method of information visualization and organization text-based into interesting spatial arrangements. The most frequently used words or word pairs in just about any text-based source document. Words are assigned different font sizes based on word frequency, the bigger the word, the more frequently it occurs in the source document. Is a visual summary of the

textual data that serves a function and provides the reader with enough information to form a general impression of what the content is about. Word clouds can serve as helpful communicative artifacts for design teams, as visual representations of research data to clarify and highlight the content (Jonathan, 2010; Rivadeneira, Gruen, Muller & Millen, 2007). Based on content analysis allows to present the results in a simple and intuitive way of exposing insights, ideas, subjects and the most relevant words in the process. It is connected to what we call Golden Nuggets.

5.3.- Imagery- Ways of communication concepts and explore insights through the presentation of images and contexts.

5.4.- Prototypes – 2D and 3D: Based on design and rendering technologies the results are presented on graphics, 3D and 2D models, ideating models and idea materialization.

5.5.- Reports: The reports can be intermediary and final and are one of the main ways of present results. This reports are a formal way of presenting the results merging design and content. The type of report depends on the type of the project, phase and target and they can be Scientific, project, strategic and branding reports. Each requires at least a final report.

5.6.- Go to Market Strategies: Go to the market strategies are focused on presenting results, recommendations, considerations, proposals and sequence to go to market.

5.7.- Pre-Business Model Plan: These results are base on fist approaches, recommendations and strategies for the development of the fist approach to the business model innovation.

5.8.- BMIs – Brand Marketing Innovation Strategies: BMIs are documents provided to the client with strategic orientations, business packs and operational approaches on order to leverage an innovative Bran and Marketing approach.

Operational status

The metric system is supported by advanced technology platform as an embedded central engine for planning, execute and control based on computerized and bidirectional multichannel communication, continuously available (anytime, anywhere) for online and offline access to data input and output. Operation of the system will be web based and mostly automated, incorporating a minimum of manual operative intervention (inputs and control) with editing and analysis functionality.

Accessing the system will be pre-authorized and scheduled so that there is a flow of inputs throughout the course of the project in terms of content, stories, testimonies and imagery and evaluation. Users duly accredited (user ID and password access) have access and functions at various levels of operations.

Regarding the full implementation of this quasi-quanti methods several research instruments were developed, tested and are nowadays part of the methodology operational blueprint and protocols, such as:

- SURVEYS - Questionnaires, inquiries: focus on gathering more quantitative data about technical quality, stakeholder engagement, self-expression (Mateus et al, 2013).
- DIARIES - Experience narratives and feedback notes: focus on gathering deeper and more qualitative data about the ideas, process, experience and opportunities and the business perspectives (Wenger et al. 2011);
- OBSERVERS - Participant Observation notes and feedback reports: the use of external participant observers (Gold, 1958). To provide their feedback, analysis, vision and information about the experience of the workshops and the ideas discussed potential. Marshall and Rossman (1989) define observation as "the systematic description of events, behaviors, and artifacts in the social setting chosen for study". Fieldwork involves "actively looking, improving memory, informal interviewing, writing detailed field notes, and perhaps most importantly, patience" (Dewalt & Dewalt, 2002);
- RANKINGS - Ideas Ratings and rankings: Trough the IDEAS(R)EVOLUTION web based Platform IDEASCLOUD, the co-creation stakeholders as well as end-user (specially in the validation phase) can vote in the Ideas pool created regarding the co-creation groups ideas for innovation. This ranking and rating system allows better decision-making support;
- METHAPHORS - Visual methaphors: focos on uncovering the relevant fundamental structures that guide people's thinking about a topic. Based on ZMET techniques and methods (Zaltman, 1992), Research study participants are usually asked to collect a set of pictures that represent their thoughts and feelings about the topic of interest (e.g one of the innovation topics, one of the selected ideas). This deep structures are unconscious, basic orienting frames of human thought that affect how people process and react to information or a stimulus. They manifest themselves in surface metaphors used in everyday language and conversation; when grouped they point to the deeper frames or structures a person is using to understand a topic;
- FACES – Measuring emotional engagement (Wood, 2012), this instrument was based on Paul Ekman (2003; 2008) about emotions revealed, understand emotions and feelings.

5.3.3 How to implement IDEAS(R)VOLUTION model

In order to implement IDEAS(R)EVOLUTION methodology you need to have in mind the phases and stages as well as the metric system already explained.

First of all you need have in consideration the assets that you can use along the project. This assets are people, spaces tools and time.

People are most important asset. Without them you cannot start developing any king of interaction, workshop or innovation process. These people need to have a set of soft and hard skills but most of all they need to be strong believers and achievers. They must be forward thinkers and be completely involved in the project. During our year of experience we develop a set of skills that we consider essential for the development of IDEAS(R)EVOLUTION methodology. You will need to have motivated people, people really want to make the change happen; You will need emphatic people with strong capabilities to connect and create bridges with others. You will also need to have, among you team, people with specific technical skills as creative intelligence, the capability to transform and deal with large amounts of information, connect the dots and transform information into something meaningful for them and for the project. Also, visual thinking skills as the ability to use schemes and communicate and the main skill, human ones.

Also is important to identify organizational innovation champions and have clearly defined the control and management and the implementation team, a team with strongly forward looking elements that love to have hands on and create.

Necessary conditions to implement the model:

- Tools - you will need six basic tools, paper, scissors, glue, markers post its, your brain and your stakeholders ones.
- Spaces - Your main space to be creative is anywhere indoor, outdoor, in context and outside context. We strongly believe that every space is a good space to be creative.
- Time - The time required needs to be fitted and parameterized to the challenge, to the organization as well as to the project team but we should advise you that must be flexible enough to achieve accurate results.
- Project definition and tool-kit – with parameterized IDEAS(R)EVOLUTION for each stage and phase of the innovation process.
- Internet – a simple wi-fi connection to be able to connect with the IDEASCLOUD platform.

5.3.3.1 Actors - Defining the Task Force

Everything settled up its time to choose the actors needed and the overall taskforce. In order to develop a full innovation process a mix between project team, organizational/territorial top and middle management as well as stakeholders all of them with ability to promote the involvement and with the mindset already explained. Only with this set of actors you will be able to achieve the desired outcomes. The taskforce is composed two types of actors:

IDEAS(R)EVOLUTION TEAM - a set of experienced and multidisciplinary researchers:

- Chef consultant or project leader,
- Project Team ,
- Facilitators,
- Observers.

CLIENTS TEAM - a set of stakeholders representative of the company, from:

- Top Management,
- Middle Management - Client Leader and project Team,
- Other areas stakeholders.

5.3.3.2 Operational Scenarios - How we work

IDEAS(R)EVOLUTION, due to his broad applications, have several scenarios and working ways in order to explore and increase the outcome of the process. This involves exploring new ways of activating the stakeholders. In a total of five scenarios that are field research, desk research, workshop research, Lab Research and Cloud:

- **Field Research -** Research or working actions taken on the field. This can involve ethnographic observations and in-depth interviews with stakeholders. The focus of the field research is to understand and get to know in a deep way the surrounding contexts of the project.
- **Desk Research -** Research or working actions for the analysis and interpretation of primary and secondary data as well as elaboration of preliminary, intermediary and final reports, design, information study and creative development.
- **Workshops -** Strong point and the central aspect of our methodology is contact point of interaction between the team and the stakeholders for the co creative work.
- **Lab Research -** Research of working action based in search, test and parameterization of ideas into tangible concepts. Is also a type of context where you will cross studies and information sources in order to develop prototypes and final ideas conceptualization.

- **Cloud -** Research or working actions based on new approaches through the IDEAS(R)EVOLUTION collaborative platform. In this way of working you will share information, inputs, tease the stakeholders and generate discussion between the elements in order to improve the process outcomes and promote the involvement of the stakeholders and the innovation team.

Along the application of the methodology you will need the define roles for each team member. This roles must be selected according with the personal and technical skills and must be divided in two main scopes, by one side the work that develops in the back office and the role that develops in the field.

The Back-Office Roles are Defined by roles that are related with first, the project and approach definition, the strategic decisions derived from the information analysis, the information analysis itself, the management of the project and the involvement/coordination of all parts.

The back-office roles when applied to: Field Research, Desk Research and LabShops, become:

- **Strategist -** This role must be developed by a highly experienced team member and is in charge of the strategic project decisions, before (during the parameterization), during (analyzing information and defining future paths) and after (managing the project deliverables and setting up the min conclusions).
- **Analyzer -** This role can be developed by junior team members always supervised by an experienced analyst. The main objective is to analyze, transcribe and report the information retrieved from the tools, observation and other sources of information to the senior analyst and then to the project leader. The chosen team members elements must be creative by one side enabling to detect patterns and hidden insights but at the same time structured to enable to be able to present concrete approaches merging qualitative and quantitative data.
- **Project Manager -** This role must be developed by an experienced project manager. Is in charge of important schedules, deadlines and milestones and to be able to manage all the team members in order to take the most efficient approach.
- **Involver -** This role must be developed by an experienced team member. Is in charge with the contact between all members in order to maintain the project running and the information flows among all members.

The Field Team Roles are defined by roles that are related with the workshop itself and they can be as a field researcher, facilitator, process manager, observer, support team or logistic team:

- Researcher: This role must be developed by experienced researchers and team members. They are in charge of the observation process ensuring that they follow the scientific and validated norms. They keep close contact with the analyzer and the strategist in order to search for better ways to retrieve and analyze information.
- Facilitator**:** This role must be developed by a mix of experienced and junior facilitators. They are in charge of the workshop dynamics, involving stakeholders, managing the motivation inside groups. They are also important elements to retrieve the deepest information that are not in the tools either in the observations. They are the ones that, following the coordinator guidelines manage the workshop.
- Process Manager: This role must be developed by an experience Manager. They are in charge of preparing, analyzing and collecting the metrics during the workshops and prepare the statistical data.
- Observers: This role can be performed by a mix of experienced and junior observers. They are in charge of taking "hidden" information from the parallel conversations and discussions stakeholders groups, detect avoided subjects, identify blocking stakeholders from the workshops and also be an important part on identifying the most important stakeholders to integrate wider or closer innovation groups. They must be good and experience listeners.
- Support Team: This role can be performed by a mix between experienced and junior team members. They are in charge of supporting and managing all the operational aspect such as video recording, presentations and other elements that can be attached to the workshop dynamics.
- Logistic: This role must be performed by mix of experienced and junior team members. They are in charge of dealing with all the aspects that are not linked with the workshop like space, materials and audio-visual.

5.3.4 Detail blueprint

As summary we presente the detailed blueprint for IDEAS(R)EVOLUTION methodology per phase, crossing the stages, the phases, the tools, the techniques and the deliverables is:

Diagnostic Phase

Objectives - Diagnostic phase aim to have a deeper knowledge about the organization/context where the project will take place. This phase is focused in understanding contexts, check stakeholder's

involvement, level their knowledge and leverage their motivation form co-creative work. In this phase we look to the organization internal perceptions like vision, mission and values to begin working over them.

Table 19 - Diagnostic phase

TOOLS	*What if; Foresight; Internal Analysis; Taylor Challenge*
MAIN SCENARIO	*Workshop. Desk Research and Lab Research*
TEAM ROLES	
Back Office	*Analyzer, Project Manager and Involver*
Field Team	*Researcher, Facilitator, Observer, Support and Logistic*
RESULTS ANALYS	*Visual Analysis, Matrixes and Coding*
RESULTS PRESENTATION	*Neuronal Networks and Report*

Source: the author

Tools:

- *What if tool* **-** is based on creative thinking and lateral thinking methods. The method is based on defining groups or individually, using a wall size tool and foster prospective thinking by asking 'what if' questions about subjects that are deeply connected with the company/organization. Participants are strived have a complete open mind and write everything that comes into their minds, without constrains, barriers, right or wrong answers. The project team supports all the process by fostering creative approaches to the question. The main objective is to deconstruct stakeholder's thinking and enhance creativity by escaping the reality of how we accept the things the way they are. By lateral thinking, solutions can be found to – in this case, non-existing – problems. It also helps to boost the creativity whilst often breaking the ice in newly founded teams. Once the barriers are broken and dreams are provoked, the motivation to start is easily found. The deliverable of this phase is to create a visual content map (neuronal network) that shows the connections between concepts and main questions. The element is the starting point of new perspectives on what the new business could be, what ideas they are looking for or what the innovation challenges in the future will look like.
- *Foresight* is a prospective tool, performed in groups and using wall size canvas. It stats by defining the actual situation followed by determining the future opportunities to identify possible gaps. The objective to develop a transversal diagnose – internal and external – analyzing several aspects of the organization in order to identify future organizational

opportunities and gaps. The expected deliverable is table (matrix) showing and overall view of the actual situation (AS-IS) and the wanted future state (TO-BE), making it possible to easily detect organizational gaps and stimulate thinking about solutions to close them.

- *Internal and External Analysis* tool consists of a mixing of desk research with wall size tooling. Firstly, the team leads a primary data analysis about the market and secondly the team makes a wall size tool in order to analyze the contextual part of the organization. The main objective of this tool is to analyze the historical and cultural part of the organization as well as the financials. It's based on sensorial and data analysis, content analysis, consumer analysis. The expected deliverable is a comprehensive diagnose about the organization's economic and cultural influences presented as a report.
- *Taylor Challenge* is a tool performed in wall size tool. The main objective is to frame a challenge by merging all collected information in order to discover the uniqueness and the advantage of the proposed innovation. Another objective is to get to a consensus about what the main path to develop the innovation will be. The expected deliverable is a focused and well-framed challenge in order to facilitate the development in the upcoming phases of the process.

Working Session - This phase is mostly based on multisensory activation, multifunctional and multitasking working sessions. Also, has a strong focus on primary and secondary data to achieve a wide knowledge about the context as well workshops to leverage stakeholders motivation and understand the internal motivations. The working sessions are mostly based on wall size tools combined with desk research. First is important to perform an internal and external analysis and foster the creative and lateral thinking. Then is time to foresight and then frame the challenge with all the collected information.

Deliverable - The Expected deliverable from the diagnostic phase is: a complete and deep knowledge about the project context and the beginning of the parameterization of the project and the definition of the innovation challenge.

Prepare phase

Objectives - Prepare phase aims to make sure that all stakeholders have an open minded to the creativity and are completely informed about all the process, the methodology, the tools and all the important aspects of the process. Also aims to transfer specific and relevant knowledge to the participants

with the objective to level their knowledge about the process and break important hierarchy mindsets. Prepare phase is developed in the beginning of all the interactions as a way to foster a creative environment, define a playful tone, stimulate both individual and group motivation as well as break motivation and personal barriers to promote creative work. In another scope preparation phase also aims to evaluate, through scientific and already validated tests as Belbin the knowledge and creative profiles, group dynamics and personality tests to identify, adjust and define efficient workgroups based on the most fitted for the creative processes.

Table 20 - Prepare phase overview

TOOLS	*Creativity by Arts; Body and Senses Gym; MindPlay; Tests*
MAIN SCENARIO	*Workshop and Lab Research*
TEAM ROLES	
Back Office	*Analyzer, Project Manager and Involver*
Field Team	*Researcher, Facilitator, Process Manager, Observer, Support and Logistic*
RESULTS ANALYS	*Visual Analysis and Coding*
RESULTS PRESENTATION	*WordCloud and Imagery*

Source: the author

Tools:

- *Creativity by Arts* - is a creative unblocking tool in which participants watch creative performances and talk with creative performers. During the experience is required to the participants take notes about the creative expression, main feelings that they had, the message and all types of information without constraints. After, they get to know and talk with the performers in order to know the sources of inspiration and the creative process that the pass through until the finished performance. At the end the knowledge and the main achievements are shared among all through open debate. The main objective is to immerse stakeholders in creative environments, promote knowledge transfer about creative processes and inspiration to through painting, sculpting, acting performances and give to the participants knowledge that can be further applied in organizational and workshop context to stimulate creative and innovative mindset and approaches. The expected deliverable is a set of knowledge and creative processes transferred to the participants.
- *Body and Senses Gym* - aims to unlock stakeholder's creativity through body and sensorial activations. Participants first are strived for a certain stimulus and after to build

their own interpretation of the same through clay or any kind material. In the end all the acquired knowledge, expressions and opinions are shared and mapped between the participants. The objective is to provoke creative experiences with certain constrains that can be vision and in the end share their stories, feelings, emotions and knowledge. The expected deliverable is foster creative thinking, creative experiences and creative processes.

- *MindPlay* - is a tool that can be unfolded in several small activities that pretend to prepare stakeholders for a creative process through objective-specific activities and experiments as: Day Dream an introspective activity to stimulate imagination and creativity by music with close eyes and idealizing a dream; Question-Change-Answer, activity developed in partners in each stakeholders answer the question that the person next to it has made; Identify Object, activity where clues are given to stakeholders and everyone is encouraged to participate in order to identify a certain object through a mix of lateral and logical thinking; If Pigs Could Fly, activity to foster o out-of-reality scenarios encouraging people to think outside of the lines thinking, stimulate creativity and problem solving; Six Radom Images, using six random images the group must create a story closely related with the images provided; Once Upon a Time, group activities the increase improvisation skills. The objective is to lead creative sessions and experiences to the participants and consensus around the achieved learnings. The expected deliverable is improve creativity skills, improvisations and problem solving skills.
- *Tests* - is used in questionnaires form and the main objective is to evaluate the group fit and group dynamics in order to define the most fitted stakeholders' group through Belbin Test, to evaluate and define the optimum group for creativity work based on stakeholders personality; Mayer Briggs, to evaluate stakeholders creativity capabilities and LAR, to define the learning types and the most efficient learning ways. The expected deliverable is to define the most optimized groups for creativity and learning.

Working session - This phase is mostly informal with close interaction between participants and the team. Each tool is developed in the beginning of each workshops and is parametrized according with workshops objectives and project phase.

Deliverable - The expected deliverable of this phase a set of variables, tests and games that will enable to define the most effective group fit for the co creative work.

Observe Phase

Objectives - Observe phase aims to leverages a fully understanding about the organization, the surrounding context and also the motivational drivers. We do not aim to solely discover the organizations vision, mission, strategy and culture but to go deep in the comprehension of the organization as a hole. To achieve this we use primary data analysis through a set of observation techniques as: Ethnographic Research as a way to observe, understand and emerge in the contexts; Depth Research in order to gather a complete and insightful ser of information; Catch the feel as a way to feel and analyze the environment and discover the true emotions, organizational culture and obtain direct information in real time. At the end, primary data is crossed with secondary data to better analyze the gathered information.

Table 21 - Observe Phase

TOOLS	*Ethnographic Diary; Cross Information; MoodBoard; Tell a Story*
MAIN SCENARIO	*Workshop and Field Research*
TEAM ROLES	
Back Office	*Analyzer, Project Manager and Involver*
Field Team	*Researcher, Facilitator, Process Manager, Observer, Support and Logistic*
RESULTS ANALYS	*Visual Analysis, Contrasts and Coding*
RESULTS PRESENTATION	*Neuronal Networks, WordCloud, Imagery*

Source: the author

Tools:

- *Etnographic diary* - is a wall size tool used to map stakeholders habits, histories and stories through images and audio visual materials that can also be captured using the features of the platform. It can and should be mixed up with set of in-depth questionnaires or observations. The objective of this tool is to discover, map and organize stakeholders' habits, behaviors and stories whether or not in the organization context, through images, ideas, concepts and other kinds of inspiration. The expected deliverable is deep information about the stakeholders and their role in the organization, identify and define the context that surrounds the innovation challenge discover and analyze the participants' or the organization's habits and stories.
- *Cross Information* - is a wall size tool used to map and systematize the information from the previous phases. The objective is to frame all gathered information in four main clusters - science, culture, technology and trends - that will help to define the innovation

drivers to be explores throughout the entire process. The expected deliverable is to define the possible innovation drivers in the organizational context.

- *Moodboard* is a wall size tool using collage of materials - images, text, colors and textures - in order to capture the environment of a certain place or design. The objective is the build a board of images that will be the mirror of the information about a territory, company or context. It will map and show the interconnections between habits and behaviors together with a general organizational structures and characteristics according with the stakeholders point of view. The expected deliverable is a visual moodboard that defines the organization mind-set and context.
- *Tell a Story* - uses a wall size format tool that makes conventions with the information that participants talk about. The objective of this tool capture the stakeholders drawings, pictures, traditions, legends and myths related with a certain context or challenge. It aims to collect five aspects of information to understand and define the past, present and the future, identify weak and strong points to be developed. The expected deliverable is to identify contextual misconceptions, functions and activities in order to improve it and to collect a set of habits, narratives and heritage factors that the context/organization/company is good at it.

Working session - The observe phase starts by providing some sort of framing for the development of each tool and the guidelines to collect information. The main trends/concepts are identified and quantified by the stakeholders. With this information a digital diary is built and all the information will be inductors to the ideation phase.

Deliverable - This phase deliverable is a set of Main Concepts the clear definition of the main innovation concepts and all the contextual frame that will be explored further in the process.

Understand Phase

Objectives - Understand phases aims contextualize the information and foster a convergent processes narrowing the information spectrum by the previously define innovation challenges. Also is an important phase in order to completely understand the meaning for the acquired information.

Table 22 - Understand Phase

TOOLS	*Roots; Sense of Belonging; Usability Test; Looking Lateral*
MAIN SCENARIO	*Workshop*
TEAM ROLES	
Back Office	*Strategist, Analyzer, Project Manager and Involver*
Field Team	*Researcher, Facilitator, Process Manager, Observer, Support and Logistic*
RESULTS ANALYS	*Coding, Matrixes and Contrasts*
RESULTS PRESENTATION	*Neuronal Networks, WordCloud, Imagery*

Source: the author

Tools:

- *Roots* - is a wall size tool where the stakeholders, in groups, write and organize information about a specific context. The objective is to explore and understand the organization/problem context in a structured way mapping both, micro and macro factors, in five main branches – people, profits, planet and culture. The expected deliverable is to understand, in this five branches, in short, medium and long term the factors that stakeholders consider that can influence the innovation challenge or the innovation objective.
- *Sense of Belonging* - is a wall size and group dynamic tool where the stakeholders define positive and negative perceptions and feelings towards the organization. This includes first the negative and negative behaviors they contribute to the organization and second find out what needs need to be done in the organization and what is the stakeholder propose inside. The objective is to retrieve the information in two main fields, perceptions and cognitions, and when applied to territories enables to identify the strong points/ solutions and the weak points/ improvements. The expected deliverable is a set of concepts and ideas, macro and micro concepts that clearly define and identify perceptions and cognitions of a certain context.
- *Usability Test* - is a real time experiences where the stakeholders try, in order to improve, already existent concepts, products. The objective is to stakeholders test and map the degrees of usability, usefulness, efficiency, learnabilty and attractiveness based on the actual situation of the products. The expected deliverable is a set of insights about the

improvements of actual products and further improvements to take into count thought the development of the following phases and innovation project.

- *Looking Lateral* is a wall size format tool where the stakeholders are force to think laterally in search of diverse insights. The objective is to stimulate lateral thinking by fostering nine possible insights creators and connect them with the company/organization context. The nine insights are characterized by consumer, culture, future, profession, brand, market, perception, usability and ownership aspects. The expected deliverable is a set of insights that will enable to explore and understand the actual and future innovation opportunities and paths.

Working session - The Understanding phase start by identifying how and where the organization is right now and the actual perceptions about it. By using a set of prospective tool give a small approach and define future paths for the development of the innovation project looking for improvements and insight to be used in the future.

Deliverable - This phase deliverable is a clear set of keywords and visions about the main innovation concepts, insights and mainly paths to be developed.

Define Phase

Objectives - Define phase is important to determine what the acquired information actually means and the starting point where is defined the concrete problematic to be explored. Also is a phase to frame and define the concrete innovation opportunities for the project, exploring future and concrete paths and finally defining internal and transmissible aspirational scope.

Table 23 - Define Phase

TOOLS	*ADN Logo; Consumer Journey; Critical Success Factors; Profiling*
MAIN SCENARIO	*Workshop*
TEAM ROLES	
Back Office	*Strategist, Analyzer, Project Manager and Involver*
Field Team	*Researcher, Facilitator, Process Manager, Observer, Support and Logistic*
RESULTS ANALYS	*Matrixes and Contrasts*
RESULTS PRESENTATION	*WordCloud and Report*

Source: the author

Tools:

- *ADN LOGO* - tool is a wall size group tool that uses adjectives, resultant from the past workshops, where the participants select and filter five elements that they consider part of the DNA. By agglutinating words, phrases, symbols and signs, using semantics, metaphors and storytelling each participant contribute with their own five words to the group. After the chosen words pass through consensus rounds until the definition of the final five words from the group. In the third phase each group share the chosen words with the other groups those pass again through consensus rounds until four final are reached. The objective is to achieve four final words that represent the DNA of the brand. This will be the building block for all the communication and brand strategies either for future creative initiatives and developments. The expected deliverable are four keywords that define the project.
- *Consumer Journey* - is a wall size format tool where the participants are strived to share their experience, satisfactions and journey about a certain product, service or experience. The information is mapped in three main stages, pre, during and post-experience into a wall size tool that simulates one or more daily journeys about the experiences, routines, insights and habits and also other useful information. The tool ends when there is a group consensus about the overall experience. The objective is to develop a map of all the consumer experience in order to identify and think about the approach and possible ways to improve the contact channels, contact points and experiences in the throughout the experience. The expected deliverable is a map of the experience, with concrete touch points and innovative inputs to how to improve them.
- *Critical Success Factors* - is a wall size tool that define the necessary factors/activities that will enable to ensure the project objectives and success. In this tool each stakeholder define their own five factors that they consider to be critical for the success of the project ranking them from 1 (most important) to 5 (less important). After that, each stakeholder share within the group and pass though a consensus round in order to define the five most important of the group. The last part, each group share their five critical success factors with the remaining groups and all the participants define the 5 most important ones. The objective is to determine the stakeholders uttermost importance factors that they consider to be important to the success of the project. The expected deliverable is the five success factors but also the strategic guidelines for the development of the

remaining phases and strategic approach that needs to be done in order to achieve success.

- *Profilling* - is an individual and group dynamic where the participants are strived to think about possible situations "one day in life". The experiences are written down and shared among all the participants. The objective of this tool is to retrieve information and insights of the participants regarding the routines, or possible ones, as well as motivations and perceptions about the project. The expected deliverable is the identification of the existing GAPs between the actual and wanted experiences, motivation and perceptions regarding the project object. The gap is the element that define future improvements.

Working session - The Define phase starts by the determination of the essence and DNA of the project, the essence and the reason to exist. After that, using the consumer journey approach the contact points come to light and the ideal consumer journey start to appear. Simultaneously, the utilization of the Critical Success Factors help to define what are the most important factors to drive the project to success. Finally profiling helps to define and actual and future the motivations, experiences and perceptions. All the tools are performed in a wall sized format, in groups and all end with consensus rounds.

Deliverable - The deliverable of the define phase a complete map with the definition of the essence of the project, a strategically approach through the definition of the CSF, a map of the overall experience and the main actual and future motivations, and the gap of them, that help to define the innovation focus of the phase. This enables us to define how the project will succeed and how the actual approach towards the innovation challenge can be optimized.

Ideate Phase

Table 24 - Ideate Phase

TOOLS	*Brainstorming; Exploration; Stations; In-Out Matrix*
MAIN SCENARIO	*Workshop and Lab Research*
TEAM ROLES	
Back Office	*Strategist, Analyzer, Project Manager and Involver*
Field Team	*Researcher, Facilitator, Process Manager, Observer, Support and Logistic*
RESULTS ANALYS	*Matrixes and Visual Analysis*
RESULTS PRESENTATION	*Neuronal Networks, WordCloud, Imagery, Prototype and Report*

Source: the author

Tools:

- *Brainstorming* - is a wall size tool used to explore, through a set of ideation, selection and filter rounds the most valuable ideas. Through ideation rounds its asked to the stakeholders, facilitated by the team, to develop 100 ideas. After this stage the group select, filter and cluster the 100 ideas into 50 with better potential and then to 15. The 15 best ideas are again selected, filtered and clusterized but this time among all the participants until 5 final ideas from the workshop overcome. All the process is facilitated by asking "why not " and "How could we" questions that help the creative thinking and breaking barriers.
- *Exploration* - in a group dynamic where all the groups frame and reframe the existent ideas in emotional and rational aspects. By defining a set of rounds stakeholders exchange with other groups to improve, connecting, cross pollinate and detaile the ideas.
- *Stations* - it's a group dynamic composed by several tables called 'stations' each one with different thematic. The ideas come from different brainstorming and speaking sessions with different scopes.
- In-*out Matrix* - is a funnel logic tool that analyze ideas in four different perspectives and two main areas micro, related with the market and consumption, and macro related with the economy and the innovation inputs. This tool searches for ideas for the innovations and have a problem solving logic that in cocreation searches for new products and services.

Working Session - The Ideate phase starts by leveraging and generating ideas and insights throughout brainstorming techniques. These ideas, resultant from the stakeholders participation, need to be shared and presented to the remaining participants in order to be improved by putting face to face with different thematic and approaches. This part is particularly important to leverage different perspectives from the same idea. Then, when ideas has passed through this process it is important to frame ideas for emotional and rational aspects and finally leverage ideation through the in-out matrix and trend cards.

Deliverable - The deliverable of the ideate phase is a set of main ideas, with real possibilities to be develop in father phases as well as all the contextual environment that justify and the reduction of the weak points.

Experiment Phase

Objectives - Experiment phase objectives are mainly focused on taking the main ideas and lead a set of experiment actions with the stakeholders. This phase also pretend to generate wider internal consensus and feedback from the users as well as improvements and possible GAPs, minding ideas and converge into a organizational strategic alignment with the current existent context.

Table 25 - Experiment Phase

TOOLS	*Sketcher, Storytelling; Internal Delphi, Prototype*
MAIN SCENARIO	*Workshop and Lab Research*
TEAM ROLES	
Back Office	*Strategist, Analyzer, Project Manager and Involver*
Field Team	*Researcher, Facilitator, Process Manager, Observer, Support and Logistic*
RESULTS ANALYS	*Coding, Matrixes and Visual Analysis*
RESULTS PRESENTATION	*WordCloud, Prototype and Report*

Source: the author

Tools:

- *Sketcher* - is a tool that aim to foster sketching using stakeholders knowledge, needs, wants, motivations and experience in order to turn into tangible concepts or prototypes. It aims to explore ideas transforming them into 'real' products and services, with help of the information of the consumer journey. Also have a natural selection filter where instinctively stakeholders develop most the ones that they consider important. This tool also uses tools as 2D Mokups and 3D prototyping to quick prototype. In the end all the developed ideas are consensualized and present to a jury for validation.
- *Storytelling* - is a tool that uses group dynamics and wall size tools in order to define ideas' narratives based on 'once upon a time logic'. This tool aims to define to general narrative and all the storytelling elements defining the main pillars of all stories, the rules, actors, the hero and the goal.
- *Internal Delphi* - is a method that present the ideas and validate the through a set of three consensus rounds of plus one final round for selecting the final ideas. It can be web-

bases opening the ideas to a wider participation, improvement and consensus to identify the most strongest ones.

- *Prototype* - is a tool that aims to prototype ideas in order to make pre-market models for validation, pre-test methods in order to foster improvements to develop a final prototype.

Working Session - Experiment phase start with the transformation through sketching the ideas into wider concepts, products or services in order to select the most important and feasible ideas to develop. After, an internal round of validation is needed to select and classify ideas with most potential in order to start developing the final models.

Deliverable - The deliverable of the Experiment phase is to build a set of alternative paths or possibilities with concrete and strategically aligned ideas, products, services or process almost ready to be implemented.

Validate Phase

Objectives - Validate phase objectives focused on get a broader, wider acceptance and statistical relevant sample for the study. It also aim to generate a wider consensus around the strategic decisions as well as improvements and feedback about the developed innovation. Lastly it aims to work on and create an innovation attraction zone for the market.

Table 26 - Validate Phase

TOOLS	*Swot, 360º Reverse Thinking; External Delphi; Triz*
MAIN SCENARIO	*Workshop and Lab Research*
TEAM ROLES	
Back Office	*Strategist, Analyzer, Project Manager and Involver*
Field Team	*Researcher, Facilitator, Process Manager, Observer, Support and Logistic*
RESULTS ANALYS	*Matrixes and Visual Analysis*
RESULTS PRESENTATION	*Prototypes, Report and Go-to-Market Strategies*

Source: the author

Tools:

- *Swot* - is a wallsize tool that identifies the strengths, weaknesses, opportunities and threats of an organization. Specifically, SWOT is a basic and straightforward model that assesses what an organization can and cannot do as well as its potential opportunities and threats. The method of SWOT analysis is to take the information from an environmental analysis and separate it into internal (strengths and weaknesses) and external issues (opportunities and threats). It aims to determine and evaluate the opportunities and goals to the innovation as well as the identification of strengths and weaknesses for the developed ideas. Also has an important strategic frame defining the market approach.
- *360º Reverse Thinking* - is a wall size tool that instead of thinking how the idea will work reframes the concept and strive the failure asking for the factor, elements, perceptions and motivation in order to create and define improvements that will fill those opportunities of failure.
- *External Delphi* - is a method that present the ideas and validate the through rounds of consensus plus one final round for selecting the final ideas. It can be web-based or workshop based and the idea is to open the ideas to a wider participation, improvement and consensus to identify the most strongest ones. It differs from the Internal Delphi in the broaden approach of external stakeholders validation. Also it gives positive and constructive orientations to future market strategies to be defined.
- *Triz* - uses evinced gaps and conflicts from the internal and external validation asking for the stakeholders knowledge to solve them. It finds solutions for negative aspects of the ideas and transform them into improvements to be applied or even generate new solutions.

Working Session - Validate phase starts with an contextual and strategic analysis provided by the swot approach. This will provide useful inputs for the market approach. After the defined strategy we lead the reverse thinking approach fostering thinking the ways our idea will fail. The validation is also an important phase in order to develop last improvements followed by the triz approach to solve last conflicts and search for solutions for those

Deliverable - The deliverable of the Validate phase is a set of concrete final insights, strategies and ideas about the developed ideas.

Sistemize Phase

Objectives - Sistemize phase objectives are focused on the definition and systemization of concrete go-to-market strategy for the final ideas. It involves the definition and building a go-to-the-market plan by operationalizing all the ideas to be ready to be implemented strategies. It focuses all the efforts in thinking about the consumer by starting the efforts and the strategies that will support and build the promotion and the attraction zone for the innovation.

Table 27 - Sistemize Phase

TOOLS	*Creative Idea, Blueprint, Building Waves, BMC*
MAIN SCENARIO	*Workshop, Lab Research and Desk Research*
TEAM ROLES	
Back Office	*Strategist, Analyzer, Project Manager and Involver*
Field Team	*Researcher, Facilitator, Process Manager, Observer, Support and Logistic*
RESULTS ANALYS	*Matrixes and Visual Analysis*
RESULTS PRESENTATION	*Imagery and Pre-Business Model Plan*

Source: the author

Tools

- *Creative Idea* - is a wall size and group tool which costumers pass through a creative cycle until they reach a creative idea that will support the marketing and communication strategies of the innovation. In this tool is needed to find the consumer sweet spot about the product, the positioning, the differentiation factors as well as the emotional and rational brand communication aspects to develop the overall communication.
- *Blueprint* - is a wall size group tool in which participants structure the idea, product or service, for the innovation communication and dissemination, building the links between the inside processes and the outside ones.
- *Building Waves* - is a wall size group tool that enables to clearly define the stages, the message and the contents each stage of the innovation communication strategy.
- *Flowcharts* - is a wall size group tool that enables to create the innovation communication elements using visuals and textual elements.

- *BMC* - is a wall size group tool that uses the traditional Business Model Canvas in order to define the ideal business model according with consumer perspective about the developed idea.

Working Session - Sistemize phase starts with the development of the creative idea. This element will be the key driver for the innovation communication strategy as well as for the marketing and market approach. Then, it is needed to be develop the links between the idea and the internal and external process. The Flowcharts and Building waves are the next one and are tools that will enable to structure and define a communication strategy, based on the creative idea and the ideated processes, to approach the market. Although, all the elements must be interconnected with the BMC in order to be aligned with the business approach.

Deliverable - The deliverable of Systemize phase is to build a complete and deep operational plan to go-to-the market.

Test Phase

Objectives - Test phase objectives are mainly focused on promoting a wider testing opportunity with a broader sample in order to test and experience the design building, to achieve and retain a broader acceptance and feedback due to the utilization, to retrieve a mix of qualitative and quantitative information as well as to perform performance tests and measurements. This phase is also important to build scenarios for the developed ideas and consequent strategies.

Table 28 - Test Phase

TOOLS	*Living Labs; Diary; Metrics Observatory; Role Play*
MAIN SCENARIO	*Workshop, Field Research and Desk Research*
TEAM ROLES	
Back Office	*Strategist, Analyzer, Project Manager and Involver*
Field Team	*Researcher, Facilitator, Process Manager, Observer, Support and Logistic*
RESULTS ANALYS	*Coding, Contrasts, Matrixes and Visual Analysis*
RESULTS PRESENTATION	*Neuronal Networks, WordCloud, Report*

Source: the author

Tools

- *Living Labs* - is a methodology that enable to create and parameterize real live, contextual and pre-market tests and experiences to external stakeholders in order to explore commercial insights and improvements.
- *Diary* - is a wall size group tool that strive participants to build narratives from the experience and provide feedbacks about the testes products. Also maps and systemize improvements from external stakeholders by knowing the leanings from the experiences, the problems and the strong points.
- *Metrics Observatory* - is a computer and web-based application the constantly analyses and provide real time statistics about the stakeholders experience through a mix of qualitative and quantitative methods and metrics. This enables to have a detailed report about the overall experience.
- *RolePlay* - is wall size group tool that enables to build scenarios ideated by external stakeholders realted with the market, product implementation and obtain feedback from them.

Working Session - The Test phase start by the implementation of the living lab methodology and the parameterization of the experience. This enables to measure and control the idea sustainability by continuously monitor the experience through real time and real consumer experimentation and participation. After, and using the scenario planning and the narrative planning tools stakeholders in co creation get consensus about the most feasible scenarios and define the main narrative.

Deliverable - The deliverable of Test phase is to build a dashboard within the platform that enables to control, monitor, evaluate and take decisions about the feedback provided in order to improve the final product and develop the ideas market approach.

Dialogue Phase

Objectives - Dialogue phase objectives are mainly focused on promote the innovation dissemination through integrated and continuously systems of analysis, feedback, improvement. It is also objective to promote the interaction between the consumer and the brand, product and organization by generating meaningful contexts delivering perceptual monitors that enhance the brand and innovation activation through continuous information flows of feedbacks and improvements within the company.

Table 29 - Dialogue Phase

TOOLS	*Always On; Feedback; Networking; Equalize*
MAIN SCENARIO	*Workshop and Cloud*
TEAM ROLES	
Back Office	*Strategist, Analyzer, Project Manager and Involver*
Field Team	*Researcher, Facilitator, Process Manager, Observer, Support and Logistic*
RESULTS ANALYS	*Coding, Contrasts and Matrixes*
RESULTS PRESENTATION	*WordCloud, Reports and BMIs*

Source: the author

Tools:

- *Always On* - is a 24/7 multiplatform in anytime anywhere contact logic to implement quality performance metrics, consensus and suggestions.
- *Feedback* - is a web-based platform with bi-directional communication channels of listening consumer feedback, improvements, conversations based in quali-quanti indicators in order to evaluate, ranking and rating the proposed ideas to a community, forum or group of people.
- *Networking* - is an activation model and tool that uses a mix method of online and offline collaboration dinamics, platforms and workshps, to promote cross stakeholder and cross company projects.
- *Equalize* - is a monitoring graphic that measure in real time a set of defined variables about the innovation effect, impact and performance in the company in two main axis, internal and external. It puts face to face the expected and the real results as well as identify the fluctuation in those measurements.

Working Session – Most applications are web-based complemented with workshops and there is not a right working method. These tools are build to respond to parameterized challenges and to achieve defined objectives as well as to continuously monitor the results to define tactical or strategic actions to perform.

Deliverable - The deliverable of dialogue is to promote and build a set of operational systems that provide to organizations a set of tools to analyze, measure and provide feedback in order to foster in organization a culture of continuous flow of ideas and improvement and mainly innovation flow.

5.4 Final (Case) EDP – INOVCITY ÉVORA

EDP is a multinational company from the energy sector of activity, with a annual turnover around 1 billion euros. The EDP project was developed in Évora, a city located in southeastern region of Alentejo with 57.000 inhabitants, in response to a challenge by EDP - the major Portuguese energy producer and distributor - more concretely EDP Comercial the group company that is responsable for the free energy market. This project aimed to measure and explore attitudes, motivations and consumer behaviours in the use of electricity using the already developed and installed intelligent grid. Also aimed to develop in co-creation ideas, products and services that would potenciate the use this smart grid. The project was financed by ERSE – Portuguese energy regulator

According to OECD (2011) the world economy is presently services predominant (i.e. approx. 70% of the world GDP), and subject to a service-dominant (S-D) logic (Vargo & Lusch, 2004; 2006; 2008a; 2008b; Kowalkowski, 2010) thus becoming an economic paradigm (Kowalkowski, 2010) for the co-creation of value (e.g. value-in-use, value-in-context and value-in-exchange) (Vargo, Maglio & Akaka, 2008). It supports service science and the fundamental reinforcement of a new general theory of markets and marketing.

Therefore the understanding and measurement of the interactions between buyers (consumers) and suppliers is critical to fully understand their logics as the fundamental enabler of innovation and co-creation of value (e.g. skills and knowledge resources integration) between these parties for moving forward (e.g. harmonious development) the global economy of families, enterprises, territories and countries, inserted in a highly networked world (Lusch & Webster, 2011).

Nowadays, consumers have a greater decision power conferred by WOM (word-of-mouth + word of keyboard) and by Prosuming (Tofler, 2006) and have planned and “tribalized” behaviours in enlarged “neighbourhood circles” dependent on own perceptions, value attribution and social pressure (Ajzen & Fishbein, 2005; Godin, 2011).

Therefore, organizations and their service brands in order to gain “attraction power” (e.g. to confer identity, prestige and trust) to “consumer tribes” (e.g. consumer bases) establish a continuous dialog (24/7), and therefore become “Always On with the Tribe” (Rosa, 2011; Mateus & Rosa, 2011) through activation platforms (of engagement, dialogue and co-creation) for innovation and creative intelligence (Mateus, 2011).

5.4.1 Summary

This empirical study presents an experimental design executed during 240 days applied in two steps: (a) a first exploratory phase, for 60 days, participated by 30 subjects; and (b) a second confirmatory phase, for 180 days, with a panel of 50 subjects, all residents in a Portuguese city, regular customers of an energy service provider equipped with smart meters in their homes, in order to obtain:

- Perceptions about energy consumption, new ideas for products/services, usability tests and prototype developing, and;
- To test ideal frequencies of relational procedures to promote and evaluate efficiency of electrical home consumption behaviours and engagement.

The program used:

- IDEAS(R)EVOLUTION multidimensional and holistic innovation system, based on co-creative methods and workshops in the first phase, and;
- IDEASCLOUD smart technological platforms and direct personalized contact, in the second phase to:
- Measure and monitor consumption and behaviours, and;
- To test a technological device for home consumption control and to validate a dedicated continuous multichannel system of bi-directional synchronous and asynchronous communication (Dialogue and *Advisory Tips*) between the participants and the service provider.

The research hypothesis postulated that higher levels of proximity and *always on dialogue* resulted in stronger engagement and co-creative collaboration, and in more efficient energy consumption behaviours. The results confirm the hypothesis and demonstrate the positive effects of a *humanized* active programmed intervention on engagement and consumption behaviour change, generated by provider-consumer continuous interaction routines and open communication channels. The experiment allowed an evaluation of the dialogue system performance - its *ideal frequency* levels of interaction and of usability and functionality of the technology used - as well as the potential for improved technological devices for consumption control and for future interactions and communication strategies. It was also demonstrated that significant energy efficiency gains (4,6%) were obtained, and proved the experimental empiric methodological approach essayed as a parsimonious, reliable and generalizable process for future use. It also adds further accuracy and validation to the IDEAS(R)EVOLUTION methodology applied.

5.4.2 Exploratory phase - PHASE 1 and 2

5.4.2.1 Challenge

This experimental test designated User Centered Innovation Program (UCIP) was conceived according to the original IDEAS(R)EVOLUTION -UNIDCOM/IADE methodology. Is the response to a challenge by the major Portuguese energy producer and distributor to explore attitudes, motivation and consumer behaviour for a more efficient and sustainable energy domestic consumption and to develop in co-creation innovative products and services supplied by intelligent networks in the high-tech pilot-region - Inovcity, in Évora (pop 57.000) - in the south-eastern region of Alentejo in Portugal.

The program was designed in a sequence of exploratory observations and group dynamics (workshops), of motivation, involvement, co-participative ideation and prototype development of new products and services, seeking to obtain the consensual responses and complex/contradictory problem solving answers to the research challenge, involving a pre-selection of 45 stakeholders of the energy supplier company, by application of quali-quanti methodology (e.g. individual questionnaires, Delphi rounds, In/out Innovation matrix and Triz methods; Krosnick, 2010; Altshuler, 1999; Listone & Turoff, 2002) for the construction of a shared innovation model (Cellular System Model; Mateus et al., 2010) in co-creation and continuous flux, for the identification of more efficient behaviours of electrical energy consumption and the development of new added value

The innovation test program (UCIP) was developed according to the following basic research questions and hypothesis:

RQ1 - Can motivations drive consumers to a more rational and efficient behavior regarding home energy consumption in order to save and to better manage their electrical bills?

These drivers can be one or more of following:

H1- More frequent information and communication within the community.

H2- Available messages focused on altruism and sense of community.

H3- Available new added value services and products (consumption alerts, personalized tariffs packs, management information systems).

H4 - Available more live interaction and multichannel energy consumption counseling from experts (energy suppliers).

RQ2 - Can it be expected that the energy supplier might motivate consumers to changing their behaviors? Mainly through:

H5- More information exchange (dialogue always on) available through gadgetry (portable meters, sms, call-center, energy audits, etc.) that convey in-use value and consumption patterns instant perception.

RQ3 - How can the energy supplier offer might contribute to motivate home energy consumers to collaborate with the company? Namely by one or both of following:

H6- New functionalities for consumption with timely management that induce involvement and convey immediate perceptions of energy savings and service value.

H7- Specifically adapted products and services to new emergent consumers´ profiles (market segmentation).

5.4.2.2 Method

The basic methodological approach in EDP was a quali-quanti nature (mix-methods). This research method has been added to initial research methods after analyzing the cases of pre-experimental phase of the thesis. It was important to have the support of a metric system regarding the implementation of the IDEAS(R)EVOLUTION methodology in more complex organizations and within more focused innovation challenges. We also follows a process of creative thinking, tools for activation of innovation and creative intelligence in organizational structures.

The planning of the research program is framed by three operational phases:

- Phase 1: Diagnostic;
- Phase 2: Co-creation and strategy;
- Phase 3 (at the time optional): Dissemination.

Phase 1 and 2 were composed of seven sequential group dynamics (workshops) with the participation of an ad-hoc fixed panel of stakeholders (clients, suppliers, employees, decision-makers, local authorities, etc.) of the energy company, and executed for a ten-week fieldwork period, in May/June 2013, at the Évora University according to the following programe.

Workshop 1 - Stage: Involvement - Phase: Diagnostic/Prepare - Tools: Body and Sensorial Gym e Belbin - Objective: start of the project, knowledge of the stakeholders, survey and collection of the group's perceptions of perceptions of energy in general and the program in particular Inovcity.

Workshop 2 - Stage: Inspiration - Phase: Observe/Understand/Define - Tools: Usability Test and Forecast - Objective: know in depth the different service experiences of each stakeholders, to review and process channel decision-making, given the different need of contact.

Workshop 3 - Stage: Ideation - Phase: Understand - Tools: Consumer Journey - Objective: find trends that should be taken into account in the ideation process for innovation, evaluation of usability levels of the EDP website, Inovcity of gadgets and information / print communication (leaflets).

Workshop 4 - Stage: Ideation - Phase: Ideate - Tools: Brainstorm, Exploration, Stations and In&Out Matix - Objective: through creative thinking processes and adapted to the collaborative dynamic design, seeks to generate new creative ideas for the solution of different problems and challenges featured in the previous steps. It promotes initial divergence, i.e., the amount of demand for solutions (divergence) from different angles and stimulation of the innovation challenge parameterized with the previously performed analysis workshop. In a second phase, seeks the convergence of ideas in view of the selection process and filter where the connection, addition, subtraction and clustering of ideas is fundamental, as well as the continued encouragement of confrontation of ideas between subgroups of stakeholders in co-creation. This confrontation of ideas is carried out with a view to consensus of the whole group around the 5 ideas with most innovation potential.

Workshop 5 - Stage: Integration - Phase: Experiment - Tools: Sketcher and Prototype - Objective: through creative processes and design thinking tailored to collaborative dynamics, seeks to further exploration of the ideas generated in co-creation by stakeholder group. Based on 5 ideas-force, selected in the previous phase of ideation, it is intended that the subgroups to explore these ideas with the prospect of the make tangible products, services, communication actions, values and brand relationship. These exercises also seek to define with some degree of specify, the experiences of use physical and virtual interfaces and the price level that stakeholders would like to have the products and services that are designing. To that end the workshop is held around a very experiential dynamics in which consumers are asked that they select, for example, types of iconic infographic, level of interaction improvements in virtual social networking platforms, and giving effect to the kind of physical characteristics of the product / service aspiring to have to perform the function that idealized. At the conclusion of this workshop is intended to obtain a final list of concrete ideas (tangible) the prototype proposed by the group challenge on innovation. These ideas are translated into an innovation matrix centered on the user / consumer.

Workshop 6a - Stage: Integration - Phase: Validate - Tools: Internal Delphi, 360º Reverse Thinking and Triz - Objective: this methodological stage the main objective is the validation of innovative ideas generated by the group of stakeholders. For that this workshop should bring together a large team of all functional and strategic areas of the client, so that ideas can be evaluated, quantify market its potential for innovation and defined a ranking of the best ideas (internal consensus). Another objective is to conduct a detailed analysis of each of the ideas, seeking an objective critical evaluation of each, including a number of aspects to deepen and doubts that ideas can raise so that they are put to stakeholders for creative resolution workshop at the end.

Workshop 6b - Stage: Implementation - Phase: Sistematize - Tools: External Dephi and Triz - Objective: this final phase methodology, the main goal is the resolution of the contradictions resulting from internal valuation analysis obtained in the previous Workshop sixth, and obtaining a consensus on what the most valued ideas. So, first, it requested to stakeholders individually, an analysis of new "sheets ideas" - enhanced by internal validation of critical - and confronted the entire group of stakeholders with the ranking obtained by the internal evaluation of the ideas as well as if you are given the questions/doubts/contradictions generated in the previous workshop.

5.4.2.3 Results discussion

In order to validate the empirical experiment (UCIP) a battery of quali-quanti tests was developed according to the following research design. The innovation programme was constructed through seven workshops (group dynamics) with stakeholders, with the duration of 3hrs each, on average, in Évora University, from May to June, 2013.

The workshop preparation started by the defining stakeholder's categories. Stakeholders were defined as *all parties involved - internal or external - that are affected (have a direct or indirect relation) by an organization´s activities and efficacy practices, including clients, opinion makers, trend setters and* partners (Accountability, 2011).

The participants were preliminary selected from a database, received a telephone call and a later a written invitation to participate. The initial stakeholder's categories defined for the constitution of the participant's panel is presented in table 30, as follows:

Table 30 – EDP - Stakeholders Frequency - Categories

External stakeholders		
Clients	14	31,10%
Opinion makers	6	13,30%
Trend setters	6	13,30%
Partners (independent trade professionals)	5	11,20%
Internal stakeholders		
Energy suppliers employees	14	31,10%
Total stakeholders	45	100%

Source: Mateus et al (2013)

The workshops participant's profiles (gender, age and residence) were the following, as in table 31:

Table 31 - EDP - Participants Profile

	Wks 1 2nd May	Wks 2 15th May	Wks 3 22th May	Wks 4 29th May	Wks 5 12th June	Wks 6b 26th June
Gender:						
Female (avg 25%)	7	7	6	6	3	4
Male (avg 75%)	24	18	19	18	12	11
Age:						
≤ 39 (avg 45%)	10	13	12	13	3	8
40 to 49 (avg 29%)	14	3	6	6	5	3
≥ 50 (avg 26%)	7	7	5	5	7	4
Residence:						
Evora area (avg 62%)	19	16	16	13	12	11
Lisbon & other areas (avg 38%)	12	9	9	11	3	4
Total participants	31	25	25	24	15	15

Source: Mateus et al (2013)

Workshops 1, 2, 3 and 4 had an average participation of 26 stakeholders. The overall average of clients in each workshop was eight (31 %) and of the other categories of external stakeholders was seven (27%).

In total, the workshops had an average participation of 58% of external stakeholders. The average participation of internal stakeholders was eleven subjects (42%).

The large majority of participants was constant along the sequence of all workshop. Whenever absentees were noticed, a procedure for its substitution was applied with success. From workshop 2 up to workshop 4, the number of participants was stable without any significant number of dropouts. Workshops 5, 6a and 6b were intentional reduced to a lower number of participants in accordance with

the methodological requirements. The participation of clients in the final three workshops was 54% on average.

The participants were divided in three proportional balanced groups. During the initial Workshop 1, a Belbin test (Belbin, 2012) was applied for harmonization of the workgroups participants profiles and individual characteristics for a more efficient group dynamics, which resulted in minor adjustments and re-composition of the workgroups as from workshop 2.

At end of each workshop session, a self-fulfilled structured instrument was applied to each participant in order to identify the participants' perceptions and attitudes. The questionnaire was composed by:

- A 2-item scales of emotional evaluation and 1 open justification question(Ekman faces);
- A 9-item Likert scale with 5 balanced terms;
- A 9-item attributed importance scale with 3 terms, for the discriminated evaluation of the sessions;
- A 3-item Likert scales with 5 balanced terms, for evaluation of overall satisfaction and behavioral intention;

At the end of the questionnaire, profile characterization questions were collected. The metric procedure was designed to incorporate several direct and indirect measurement components:

- Directly (a) an emotional dimension (Ekman, 2006);
- A cognitive perceptual (quality and self-expressive/attractiveness) dimension (Christiaans, 2002);
- An attitudinal (satisfaction and behavioral intention) dimension (Cronin et al., 2002). Indirectly a set of three independent observers registered the groups´ dynamics in a structured instrument, designated "observer formulary", for latter contents analysis, for each workshop (except Wks 6a). All sessions were video recorded.

The evaluation of the participants about the several tools (instruments) incorporated in the exercises was very positive, particularly in workshops 4 and 5 where stronger stimuli for creative collaborative participation were used. In general terms, the individual emotional states recorded after the sessions are very positive. Average the majority of participants (58%) declare to be "Happy"; and a significant number (23%) declare to be "Surprised". More than half (51%) of all participants report a "high" emotional intensity. The emotional "happiness" and emotional intensity grows constantly along the sequence of workshops, as represented in figures 4 and 5. The evaluation instrument aimed at measuring the participants perceptions and attitudes about:

- The methodological tools employed in each workshop;

- The discriminated quality performance and self-expressive capacity (attractiveness) of the workshops;
- The global satisfaction with the sessions´ functioning and the behavioral intention of recommending and continuing the collaborative participation.

The participants average global satisfaction with the workshops contents and work method is very positive (M=4,26; sd= 0,73), and increased along the process. The high satisfaction (motivation) is also revealed by the declared will of contributing further to the project (98,5%).

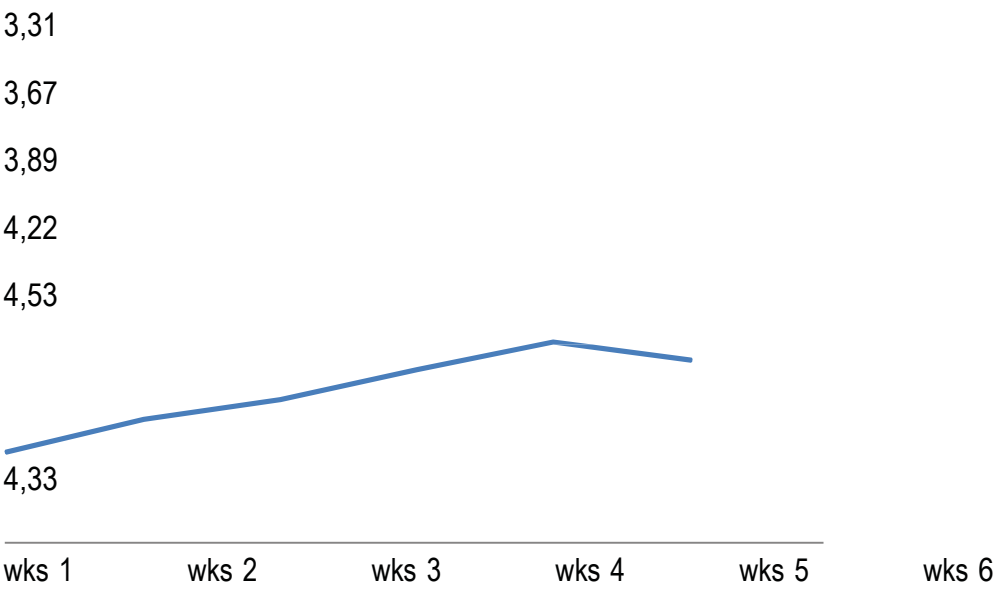
The evaluation of the workshops was measured by a 5-point balanced agreement scale constructed with two dimensions, Technical Quality and Self-expression. This two-dimensional construct was inspired from a solid theoretic referential for the evaluation of creative processes (Christiaans, 2002). An exploratory principal components factor analysis, with varimax rotation, was executed confirming the significance of this two dimensional construct (KMO=0,896; tot.var explained= 62,645%; F1(Technical quality)=52,345%; F2(Self-expression)=10,292%).

Furthermore, the reliability of the 12-item scale (9-item weighted agreement x importance scores + 3 un-weighted items) calculated for all workshops results is of high order (Cronbach´s alpha= 0,871).

Overall, the participants evaluated the attractiveness of the workshops in a very positive manner and declare that the collaborative work there produced contributed for their self-enjoyment (self-expression). The evaluation of the two perceptual dimensions of the construct, weighted by the attributed importance for each item is constant all along the workshops. Besides, the “technical quality” of the workshops sessions is also very positively and incrementally appraised along the process. The two dimensions independence is significant ($F(5,124) = 2,56$, $p < .05$).

One of the questions of the “technical quality” dimension (“we obtained positive results for improving energy consumption efficiency”) is highly correlated with the energy efficiency attitudinal expression. Overall this perception evolved positively along the workshops revealing that the participants´ view that the work produced in a cooperative manner can very importantly contribute for a more efficient energy consumption behavior, as shown in figure 56. The sequence measured is significant ($F(5,124) = 5,03$, $p < .001$).

Figure 56 – Stakeholders self perception regarding their contribution to energy efficiency



Source: Mateus et al (2013)

A linear regression analysis revealed that the two-dimensional construct (Technical quality and Self-expression) contribute to significantly explain the variation of Global satisfaction with the workshops. The results show that its contribution is very significant (Adj R2 = .55, F(2,127) = 79,32, p < .001). The Technical Quality perception is the more determinant factor for the Global Satisfaction of the participants with the workshops sessions (β = .62, p < .001), followed by Self-expression (attractiveness + self-expression) (β = .18, p < .05), as in figure 9. The equation for the prediction of Global Satisfaction with workshops (e.g. methodology) is resolved according to the following model: GS= 4,252 + 0,62 x TechQuality + 0,18 x Self-expression.

5.4.2.4 Findings

It can be concluded that the quali-quanti methodology tested to validate the design thinking - Ideas(R)Evolution - procedures for the development of an energy supplier´s UCIP (User Centered Innovation Programme) in Évora, Portugal, demonstrates the adequacy of the repeated measures mixed quali-quanti method for an holistic dynamic evaluation of the workshops participants perceptions of the results efficacy and subsequent attitudes (e.g. satisfaction and behavioral intentions) towards the experiments. It reveals the program´s evolution in two levels:

- Through a valid set of comparative standardized measures (quantitative structured metric data) related to the participants 'emotional feelings and cognitive attitudes towards the workshops experiments;

- Through a rich set of exploratory qualitative data (qualitative semi-structured data) justifying the participants 'opinions, attitudes, aspirations, behavioral intentions and perceived outcomes.

As often argued in the literature (Christiaans, 2002; Cronin et al., 1992; Kelly, 2006; Kotler, 2010; Lusch, 2011; Mateus et al. 2011) the design thinking and marketing research inputs for the co-creation of value, innovation and creative intelligence within the microeconomic processes, is in need of a more accurate and operational set of measurements (proofing) and procedural validation that can bring to light and increment its full interventional potential, for a more credible and tangible evaluation of its action power in the development of the "economy of happiness"(Prahalad, 2004; Tofler, 2006).

This methodological validation of an user-centered open innovation program based on quali-quanti methods, and applied through a longitudinal design by a set of self-administered instruments that diachronically collect the emotional and cognitive quantitative and qualitative measurements of the workshops, proves to be a robust and valid method.

The battery of the repeated measures plan applied demonstrates that the sequence of measures and instruments as a whole configures a parsimonious evaluative model, of which the method essayed is reliable, valid and most likely generalizable for future research.

The results also demonstrate that the methodological approach essayed adds accuracy to IDEAS(R)EVOLUTION methodology. In this light it is highly recommended that other replications and critical evaluations of this methodological approach are reproduced in diverse research contexts.

In the end of Phases 1 and 2 (Phase 3 was further developed), the results obtained were very significant, in qualitative and quantitative terms, concerning the diversity profile, quality of interaction, participation, motivation and involvement of the participants, fully corresponding to the study objectives.

Very interesting tangible proposals for the innovation of new products and services were obtained that point-out solutions for:

- Domestic energy consumption behavior(s) and efficiency;
- More intense relationship and involvement between the supplier, the client and the community.

The conclusions reveal two main consumer aspirational dimensions, or attitudinal logics:

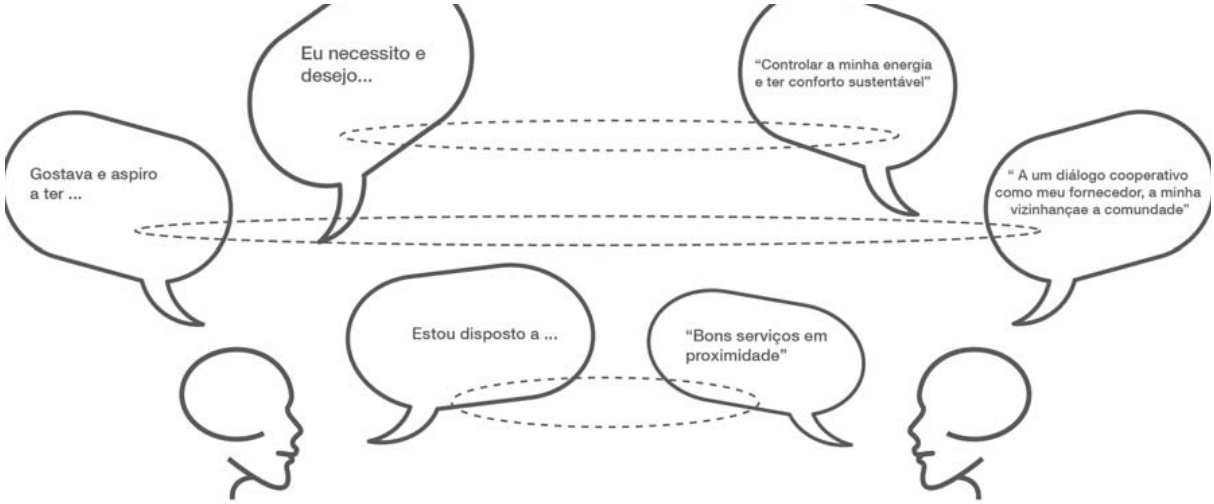
- L1- Cooperative Dialog;
- L2- Services in Proximity, as the main motivational drivers for the energy consumption.

Within these logics a large group of needs and desires (aspirations) are revealed by the participants:

- As to L1 logic it revealed:
- Aspirations to have a "friendly" energy supplier in permanent "active listening" (dialogue);

- Needs to compare, learn and act in dialog with the neighbors (surrounding community);
- Desires to interact with the community (city residents) and exchange learning experiences for a better quality-of-life.
- As to L2 logic it revealed:
- Needs of infometrics supplied by peripheral intelligent equipment (gadgetry), easy to use (e.g. parahmeterizable and adapted to users' cognitive processes);
- Energy audits and certifications of domestic electrical and gas equipment;
- Dynamic and timely counseling (anytime, anywhere) for home comfort;
- "à la carte" tariffs that can be individually adjusted to consumers' needs and consumption patterns, coupled with a choice of individual comfort and efficiency programs.

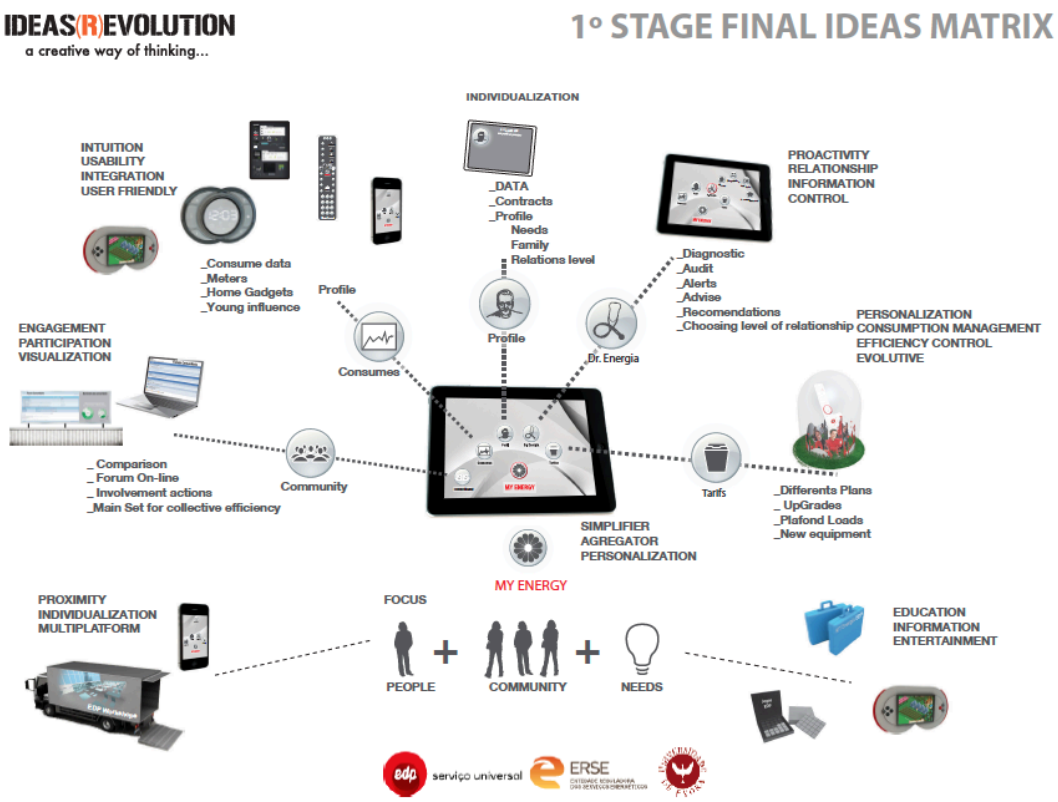
Figure 57 - Initial results phase 1



Source: Mateus et al (2013)

In the end an output of 14 tangible "ideas" (see figure 58) co-created by the participants were prototyped and subsequently tested for usability with a rank of attributed importance/priority for each prototype. The results also show a consumers´ predominant mindset in need of "humanized" relationships between client, supplier and community, of direct contact, personalization of service and permanent (always on) dialogue. Thus, all research hypotheses (H1 to H7) were empirically confirmed.

Figure 58 - Final Ideas Matrix



Source: Mateus et al (2013)

In short we can observe that the implementation of human interaction, always on dialogue and technological control devices for efficiency in energy consumption and behaviors led to very significant effects at different levels. In the first phase, a significant number of 14 ideas for new products and services were obtained, under two emergent dominant attitudinal logics for collaboration: (L1) “Cooperative Dialogue” and (L2) “Services in proximity”. In the second phase, the efficiency gains in energy consumption were very significant: 4,6% in average for all groups (of which 7,7% for control group;10,8% for monthly group;11,7% for weekly group and 14,3% for living lab group). Also, some important behavioral changes were declared by the participants with future behavioral impact.

Moreover, the results demonstrate a high degree of satisfaction with the participation in the experiment, as reflected by the participants´ emotional states.(e.g. overall 58 % declared to fell happy). They also declare a very positive perception of the experience, describing the importance of their contribution to self and family, as well as to the community level (self-expression).

5.4.3 Confirmatory phase PHASE 3

After the positive results of the exploratory phase, the EDP managers decided to go forward with the phase 3. The main goal was to test in real life context, in a proof of concept living lab method, 3 of the 14 final ideas developed by the stakeholders in the previous phases of the project.

5.4.3.1 Summary

Research and intervention have shown some efficacy of the access to technology such as smart meters or equipment to monitoring and control consumption, as well as strategies for feedback/dialogue and information, in the promotion of efficiency in energy consumption. This part of the study - confirmatory phase 3 - presents an intervention with an experimental program, in which participated about 50 residents of a Portuguese city, customers of a service provider of energy, inserted in a program to promote efficiency in consumption. The program used technology to measure and monitor consumption, and a system of communication (dialogue) between the group of participants and the service provider. The results allow discussing the effects of the intervention on energy consumption, the change in behavior of energy consumption, and evaluation of the dialogue system and the technology used as well as the potential for improved technology and communication strategy.

5.4.3.2 Methodology

The experimental plan was attended by three groups of customers. These three groups (monthly group, weekly group and control group) differ depending on the degree of interaction and communication with the figure Dr.Energia (Dr Energy) tested. Besides these groups of the experimental design, this phase included the group living lab, which allowed a trial of more qualitative nature. The plan actually ran for 17 weeks, between 24 January and 17 May.

The monthly and weekly groups had to install the consumption management system (CMS), an energy audit and access Dr.Energia platform (see Figure 57). The level of interaction with the figure Dr.Energia differs in these two groups, monthly or weekly basis.

The control group did not have any kind of interaction or access to equipment and services (installation of CMS, access Dr.Energia platform and energy audit).

In relation to group living lab, there was no planning in terms of frequency of interactions, and no routine contact between the figure and Dr.Energia these customers. The interactions that existed throughout the study for this group became essentially interactions in Dr.Energia (Share Area) platform, and face sessions and online (through the Living Lab area in Dr.Energia platform). Customers have always been motivated to share their feedback about the system (eg, Suggest improvements to

functionality and navigability, detected technical problems, doubts, difficulties in use, etc.) and aspects of energy efficiency.

Communication with groups from the Dr.Energia was made via email and SMS, and phone Dr.Energia platform. There were many types of interactions: interactions provided in the schedule (feedback messages of consumption and forecast monthly consumption with " tips for using the SGC platform " and " audit tips ", and yet the follow-up call), generated as a result of interactions questions, suggestions or response to comments from participants and interactions such reminders, information, technical assistance, etc. Interactions provided in the schedule, in terms of frequency range, were different between groups: in the monthly group interactions occurred only 3 per month and weekly group interactions occurred 3 per week (12 per month).

Some content was produced as tips for using the platform, and that would be sent along with the feedback messages intakes, were defined a priori to either the monthly or weekly group. These tips were created in order to encourage customers to navigate through the different areas of the platform, such as outlets / equipment (Scheduling the operation of equipment at specific times, eliminating stand-by consumption, etc.) programming, analysis consumption, creating notes in charts consumption and export to a data sheet (Excel).

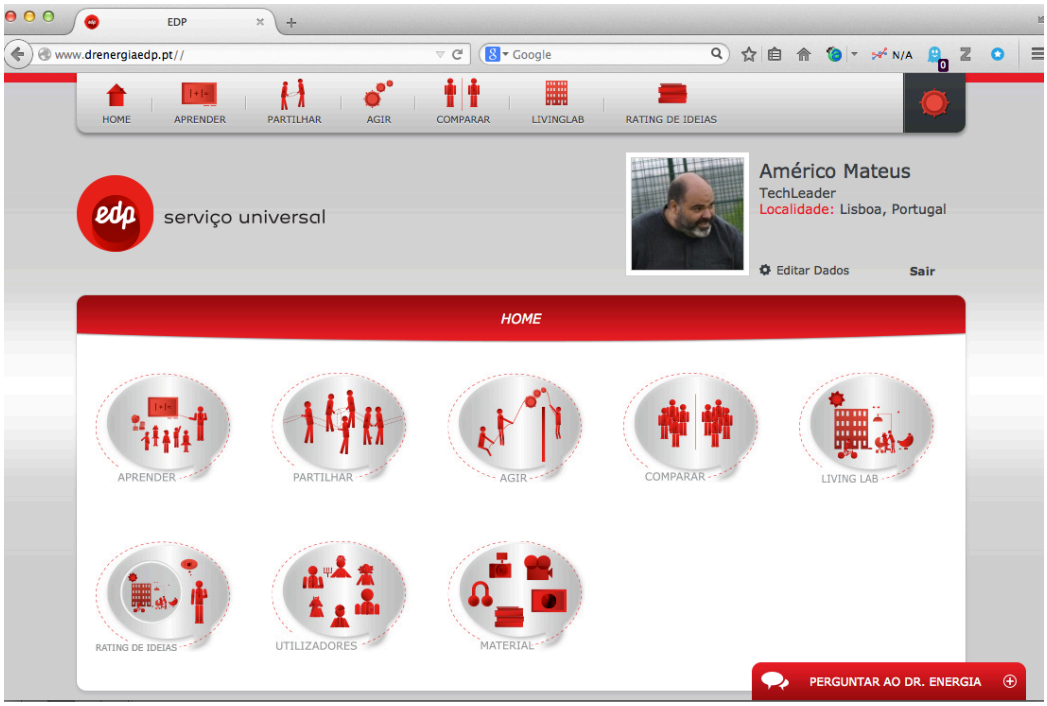
From the results of energy audits in the home of clients, with personalized recommendations for measures to be taken tips were created. These tips were sent along with the message of the monthly consumption forecasting. Assessment or incentive (or mixed) - to emphasize, however, that in cases where there was sufficient information in the report's recommendations for all interactions that would exist throughout the study, another type of tips were created.

These tips assessment resulted from analysis by the Dr.Energia, the evolution of consumption and if the customer had increased or decreased, it was suggested to the client that exploited their consumption data across the platform and try to ascertain the reason for the increase / reduction. TripAdvisor encouragement, were based on encouraging the client to visit the Dr.Energia platform, firstly to share with the community their own behaviors and actions of efficiency on the other side to try to find tips on learning area / share how it could help reduce their consumption when it appeared significant / abnormal increases by the customer.

In the end of the project, it was held a final workshop of the study, which had as its main objective to end the cycle of interactions between Dr.Energia figure and the participants in the experiment. Twenty-nine guests were invited.

With 22 customers who attended the final workshop, we made a brief assessment of the study attended and asked to answer a questionnaire. It was also delivered to each customer their report with the results of the energy audit at their home.

Figure 59 - Dr energia Platform



Source: Mateus et al (2013)

5.4.3.3 IDEASCLOUD platform

Measures, indicators and methods of gathering information

According to the objectives of the study and research hypothesis[7] was defined a set of indicators for the analysis of results on the effects of the experimental design and the evolution of the study participants.

Beyond collecting information relating to energy consumption, the use of Dr.Energia platform and email Dr.Energia, defined the following instruments / scales to be used for each of the indicator:

- Scale pro-environmental behaviors adapted from Loureiro (2011), to assess the frequency of a set of behaviors (energy efficiency appliances, lighting or air conditioning), behaviors associated with separation for recycling / packaging / re-use, use of water or behaviors of mobility;
- Scale of values (reduced and adapted version of the PVQ scale, Schwartz, 2001), to review the guidelines pro -self values (power and personal fulfillment) and pro -social values (environmental and altruism);

[7] In the EDP case, the researcher defined research hypotheses because the qualitative and quantitative research method was introduced, as present previously.

- Environmental attitudes scale adapted from Loureiro and Lima (2009), which measures cognitive and affective component of attitudes towards the environment;
- Indicator of overall satisfaction with the experience, through two items regarding satisfaction with participation in the experience and the recommendation of the experience to others;
- Scale perception of experience, with a set of items to assess the perception on the contribution of the study to improve the consumer or the perception of the relationship with EDP;
- Indicator of emotional state, with the identification of the emotion associated with the experience and intensity associated (adapted from Ekman, 2009);
- Usability scale to assess ease of use, efficiency, and satisfaction on the technological tools and interactions used in the experiment (Wenger et al, 2011). The scale assesses the usability of the CMS tools, platform Dr.Energia and interactions. It was also considered important to assess the extent of use and perceived contribution to the energy efficiency of each tool;
- In addition to these indicators, also assesses changes or alterations made by the participants on energy consumption (eg change of tariff, purchase equipment, lighting).

This set of scales and questions were grouped in two questionnaires, one for application before beginning the experimental plan (Questionnaire 1), and another at the end of the study (Questionnaire 2), in order to assess the differences in the evolution of the participants and the effects of the intervention.

Given the complexity and variety of information needed for the analysis of the results and the opportunities offered by technology, the sources of data collection used throughout the study were diverse. Table 32 summarizes the various measures and indicators relating to different areas of analysis results, and table 33 summarizes the information sources and instruments used.

Table 32 - Measures and Indicators

		Grupos teste			
		G1. mensal	G2. semanal	G3. controlo	G4. living lab
Medidas indirectas	Leituras consumo (kWh)	√	√	√	√
Medidas directas	Indicadores/Escalas	#	#	#	#
Comportamentais	• Valores ambientais	√	√	√	√
	• Atitudes ambientais	√	√	√	√
	• Comportamentos pró-ambientais	√	√	√	√
Percepção	• Satisfação global	√	√	x	√
	• Percepção da experiência	√	√	x	√
	• Estado emocional	√	√	x	√
Usabilidade	• Usabilidade das ferramentas e interacção	√	√	x	√

Source: Mateus et al (2013)

Table 33 – Information Sources and Instruments used

		Grupo Mensal	Grupo Semanal	Grupo Controlo	Living Lab
Consumos	Dados SGC	√	√	-	√
	Dados EDP	√	√	√	√
Comportamentos e Percepção	Temperaturas Évora	√	√	√	√
	Questionário 1	√	√	√	√
	Questionário 2	√	√	√	√
	Entrevistas	√	√	-	-
Usabilidade	Questionário 2	√	√	-	√
	Entrevistas	√	√	-	√
	Int plataforma Dr.Energia e e-mail Dr.Energia	√	√	-	√
	Sessões living lab	-	-	-	√

Source: Mateus et al (2013)

The data were collected energy from the consumption management (CMS) and data provided by EDP system.

The use of SGC enabled the collection of consumption data from participants in the monthly, weekly and group living lab in the months of January to May 2013 experimental groups. Consumption data provided by EDP relate to the consumption of the participants in the control group during the months of November to May 2013, and the consumption of participants monthly, weekly and living lab in the months of November and December 2012 experimental groups.

Analysis of use of Dr.Energia platform allowed the collection of information on the relationships of the participants, particularly those shares tips and information and contacts with Dr.Energia (these also effected through info@drenergiaedp.pt email).

In order to be able to perform further analysis of the study results was also carried out a series of interviews to collect data of a qualitative nature. Each interview aimed to assess satisfaction of participants regarding the course of the experiment, the exploration of attitudes towards contribution to energy efficiency, the use of the tools, the vision of the " ideal platform " and perceived value. How to Support / script these interviews was developed an instrument with a set of stimuli that allowed better conduct and objectification of the questions. These interviews were conducted with 3 participants monthly group and 5 of the weekly group, randomly selected.

The living lab group allowed the generation, interaction and sharing of ideas on efficiency in energy consumption as well as to collect suggestions and critical points of the available technological tools. During the trial a set of lab, classroom and online living sessions were conducted (through the Living Lab area in Dr. Energia platform). These sessions were intended to continuously collect information from the group and motivate participants to share with the other participants your feedback about the management of consumption (suggestions for improvement of functionality and navigability, detected technical problems, doubts, difficulties in use, system etc), as well as aspects related to energy efficiency.

5.4.3.4 Results

The experimental plan and living lab implemented allow to test the general hypothesis that the more frequent interaction and customization service (dialogue) increased the efficiency of electricity consumption, greater satisfaction and satisfaction with the service, and more positive perceptions, attitudes and environmental behavior's declared by consumers. Following we present the detailed results according to the main dimensions: (a) energy consumption; (b) Behavioral, satisfaction, perception and usability indicators; (c) Behaviors, values and attitudes; (d) Overall satisfaction, emotional state and perception of the experience, (e) Usability.

A - Energy Consumption

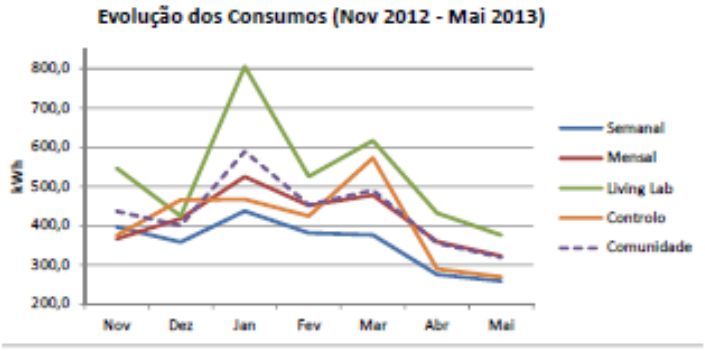
Consumption data of different groups of participants in the study, for the months of November 2012 to May 2013 are shown in the tables 34 and graphs below.

Table 34 – Participants Energy consumption data

QUADRO 49_Consumos médio de energia por grupo e temperaturas na região de Évora (kWh)

	Nov	Dez	Jan	Fev	Mar	Abr	Mai
Mensal	366,0	417,5	524,6	451,5	477,7	359,1	322,5
Semanal	396,5	358,0	436,9	381,2	375,9	275,4	258,5
Controlo	374,6	465,6	467,2	424,4	572,3	289,4	269,0
Living Lab	546,5	424,3	805,6	525,2	616,8	432,0	375,7
Comunidade	436,3	400,0	589,0	452,6	490,1	355,5	318,9
Temperaturas (máx-min)	16,57-10,6	15,35 - 9,94	14,97 - 9,71	14,61 - 8,2	16,16 - 10,39	19,67 - 11,53	21,61 - 10,87

nota 1: Comunidade - grupos mensal, semanal e living lab
nota 2: Dados de temperatura de http://www.accuweather.com/pt/



Source: Mateus et al (2013)

The analysis of consumption data shows a trend toward reduction of energy consumption in all groups during the intervention period (January to May). Further, in March, Easter, it can be seen that the control group has a peak consumption, and this peak is much less pronounced in what concerns weekly and monthly groups.

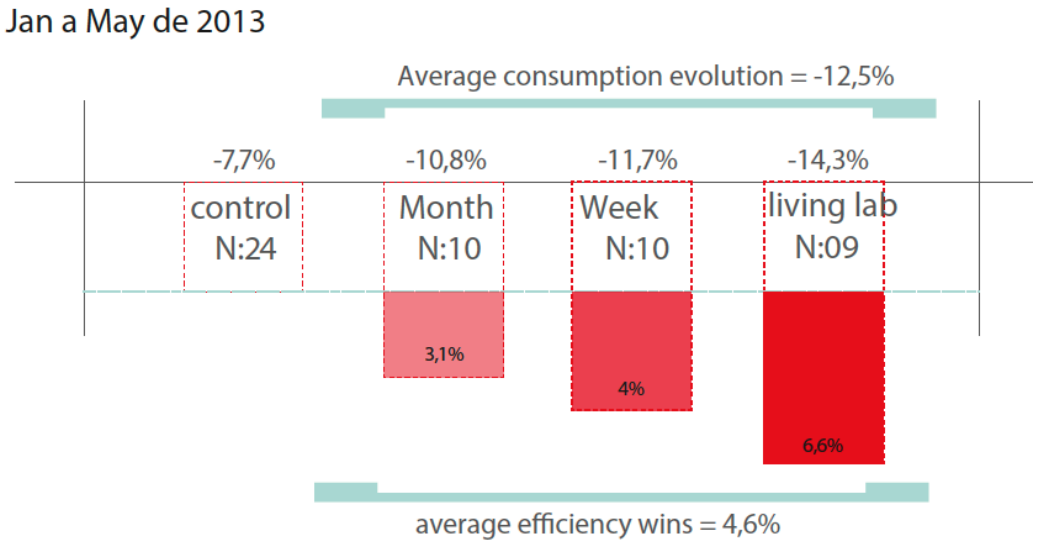
Figure 60 shows the data of power consumption by detailed participant in each experimental group (monthly, weekly and living lab), which permits a more discriminating observation of reducing energy consumption mentioned above.

These data, together with the detail of consumption data per group and per customer, lead to conclude that a variation is observed towards a decrease in energy consumption in all groups participating in the trial (the community made by the participants in monthly groups, and living lab weekly), which shows an improvement of efficiency in energy consumption during the period of experimentation. However, in line with the seasonality of the time of year, on average, the experimental groups (monthly, weekly and living lab) have an "efficiency gain" (higher relative decrease) in energy consumption of 4.6 %, compared to the control group (see Figure 60).

An important reference is the analysis of “off-peak” energy consumption on consumers adopting a multi-time tariff. The analysis of consumption in the different groups shows an increase by 50% (N = 7) of

participants in the study with multi - time tariff. Another data presented in this case study full report also reveals that 5 customer made a change of rate for a multi-time tariff during the period in which the trial.

Figure 60 - Energy Efficiency Evolution



Source: Mateus et al (2013)

B - Behavioral, satisfaction, perception and usability indicators

The results concerning sustainable behaviors are presented below, values and environmental attitudes, satisfaction with the experience and perceptions associated as well as the usability of the tools and forms of communication / interaction. For each set of indicators are generated a set of indexes for analysis (from the items / Questionnaires issues 1 and 2), which have good overall fidelity levels and thus can be used in subsequent analyzes. The indices are generated "usability" (= .92), "full pro-environmental behavior" (= .65), "comp. pro- amb._equipamento" (=.56), "comp. pro- amb._iluminação" (= n.s.), "comp. pro- amb._temperatura" (= n.s.), "comp. pro- amb._separação and re - use" (= .57) , "pro -social values" (= .72) , "values pro -self " (= .66) , "environmental attitudes" (= .59) , "overall satisfaction" (= .94) , "weighted overall satisfaction" (= .85) and "perception of the experience" (= .85) .

Data from different indicators for different groups of participants, and for two moments of measurement, assessed by questionnaires 1 (December 2012) and 2 (May / June 2013) are presented in the Table 35.

Table 35 - Data analysis from the questionnaires

QUADRO 55_Estatística descritiva dos comportamentos sustentáveis, valores e atitudes ambientais

	Questionário 1 (Dez 2012)								Questionário 2 (Jun 2013)							
	G1		G2		G3		G4		G1		G2		G3		G4	
INDICADORES	M	DP	M	DP	M	DP	M	DP	M	DP	M	DP	M	DP	M	DP
Usabilidade	-	-	-	-	-	-	-	-	3,63	0,48	3,56	0,83	-	-	3,99	0,77
Comportamento pró-ambiental_total	3,86	0,24	3,62	0,35	3,88	0,42	3,85	0,21	4,04	0,19	3,83	0,43	4,15	0,32	3,95	0,14
Comp_equipamento	3,77	0,30	3,54	0,36	3,79	0,48	3,70	0,16	3,84	0,18	3,66	0,45	4,02	0,46	3,63	0,23
Comp_iluminação	4,45	0,28	4,30	0,59	4,35	0,58	4,56	0,39	4,63	0,23	4,50	0,53	4,50	0,60	4,57	0,45
Comp_temperatura	3,71	0,64	3,74	0,37	3,96	0,51	3,63	0,92	4,03	0,55	4,10	0,67	4,40	0,42	4,69	0,47
Comp_separação e reutilização	3,98	0,53	3,50	0,90	3,78	0,59	4,06	0,45	4,25	0,24	3,83	0,89	3,89	0,63	4,02	0,40
Valores pro-social	5,00	0,53	4,58	0,46	4,82	0,94	4,89	0,67	4,63	0,86	4,55	0,72	4,61	0,72	5,00	0,65
Valores pro-self	3,37	1,11	3,52	0,94	3,52	0,97	3,33	0,88	2,83	0,84	3,47	0,53	2,70	0,59	3,43	1,05
Atitudes ambientais	3,70	0,37	3,81	0,45	3,89	0,43	3,95	0,53	3,89	0,43	3,74	0,28	3,63	0,28	4,08	0,58
Satisfação geral	4,25	0,42	4,30	0,63	-	-	4,28	0,51	4,44	0,50	4,22	0,62	-	-	3,86	1,07
Satisfação geral ponderada	9,90	2,81	9,80	2,63	-	-	11,11	3,32	11,00	2,99	10,78	3,32	-	-	10,33	4,41
Percepção da experiência	4,28	0,39	4,01	0,42	-	-	4,17	0,36	4,05	0,34	4,00	0,49	-	-	3,84	1,08
	G1		G2		G3		G4		G1		G2		G3		G4	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Estado emocional																
Ansioso	1	16,7	1	20	-	-	-	-	0	0	0	0	-	-	0	16,7
Surpreendido	2	33,3	0	0	-	-	-	-	3	50	2	50	-	-	1	0
Feliz	3	50	4	80	-	-	-	-	3	50	2	50	-	-	5	83,3
Intensidade emocional																
Baixa	0	0	0	0	-	-	-	-	0	0	1	25	-	-	0	0
Média	5	83,3	4	100	-	-	-	-	2	33,3	3	75	-	-	3	50
Alta	1	16,7	0	0	-	-	-	-	4	66,7	0	0	-	-	3	50

nota 1: G1 - mensal; G2 - seminal; G3 - control; G4 - living lab
nota 2: escala mín=1 máx=5, excepto valores (mín=1 máx=6) e satisfação geral ponderada (mín=1 máx=15)
nota 3: N do grupo de controlo, Q1 = 24 e Q2=9

Source: Mateus et al (2013)

C - Behaviors, values and attitudes

In general, participants in the trial phase exhibiting a degree of behavioral performance with very positive pro-environmental nature (see table above).

Regarding the evolution of these behaviors during the experimental period, there was a trend for an increase in this type of behavior, the time of initial evaluation (Nov / Dec 2012) for the evaluation at the end of the study (May / Jun 2013). Despite comparisons with the control group being hampered by the different participants in the group of initial stage to the end of the study (24 to 9), there is an increase in pro- environmental performance from baseline to the final stage in all groups with humanizing the interaction (groups monthly, weekly and living lab) ($F(1,30) = 13.31$, $p < .001$).

The values of pro-self type (guidance for individual results) have a tendency to decrease during the experimental period in the monthly and weekly groups (F (1,29) = 4.11, p = .052), although this trend is not accompanied by increased amounts of pro - social orientation.

In order to assess more broadly the purposes of the trial, was still considered useful to identify changes carried out by the participants, which may reflect an evolution in its paradigm of efficiency in energy consumption, translated into concrete changes in their actions with intention of reducing its energy consumption.

It is observed (see table 36) that from the total of 27 participants from the experimental stage who responded to Questionnaire 2, 9 carried out changes in lighting their homes, 7 purchased (or exchanged) equipment with high energy efficiency and 5 changed their tariff. In addition, highlight an important performance in terms of removal of stand-by consumption (about 60% of the changes reported).

Table 36 - Stakeholders changes during the Living Lab – Phase 3

ALTERAÇÃO	G1-mensal	G2-semanal	G4-living lab	Total	
	N	N	N	N	%
Alteração tarifário	3	1	1	5	8,9
Alteração potência	0	1	0	1	1,8
Alteração iluminação	3	2	4	9	16,1
Eliminação consumos stand-by					
Interruptor	6	4	5	15	26,8
Programação SGC	3	1	2	6	10,7
Directamente nos aprelhos	6	3	3	12	21,4
Troca/Compra de equip. eficiente	2	2	3	7	12,5
Obras/alterações na casa	0	1	0	1	1,8
Total alterações				56	

Source: Mateus et al (2013)

D - Overall satisfaction, emotional state and perception of the experience

At the end of the trial phase, the overall satisfaction with study participation is very high in all groups.

The weighted satisfaction (overall satisfaction x importance) of monthly and weekly groups increases significantly from the previous stage to the beginning of the experimental design (satisfaction for participating) to the end point of the study (satisfaction for participating) (F (1,20) = 3 67, p < ,05). In group living lab, the satisfaction level falls significantly, though it remains very positive, which may be due to the high expectation that run to the study.

Positivity of satisfaction with participation is also evident in the emotional state revealed by the participants. While upstream of the start of the trial, participants showed essentially happy, this happiness evolves into a mixture of happiness and surprise that are manifest at the end of the study.

The perception of the experience (e.g: "I feel that I have contributed to improve the consumption of electricity in my community (city, neighborhood, neighborhood) "; " I think I 'm saving on the electricity bill," "I feel I learned something from this experience") that the experimental group participants expressed at the end of the trial period is generally quite positive (MG1 + G2 = 4.03; Mllab = 3.84).

E - Usability

The general perception of usability of technological tools and interaction with Dr.Energia (e.g: " This experience helped to control power consumption in my house", " I was comfortable with the tools available"; "It was important to have information on changes in my energy", " I used Dr.Energia platform "; " I was able to make suggestions ") is quite positive (Mtotal groups = 3.72) (see Table 37). This is an indicator that the participants of the monthly, weekly and living lab groups used the tools or the content of incoming messages in Figure Dr.Energia also feeling the usefulness of available information and suggestions as well as a manifestation of the perception of opportunity to participate in discussions or giving suggestions (see table 37).

Table 37 - Usability statistics from GSC and Dr Energy platform

QUADRO 57_Estatística descritiva da usabilidade da plataforma do SGC e plataforma Dr.Energia

	Utilização (nada 1 - 5 muito)						Contributo eficiência energética (nada 1 - 5 muito)					
	G1		G2		G4		G1		G2		G4	
Plataforma SGC	M	DP	M	DP	M	DP	M	DP	M	DP	M	DP
Consumos/gráficos	3,33	1,51	3,67	1,53	4,33	0,82	3,33	1,37	3,33	1,15	4,50	0,84
A minha casa	3,83	0,98	3,00	1,00	4,00	0,89	3,33	0,52	3,00	1,00	4,17	0,98
Eficiência energética	3,67	0,82	2,33	0,58	3,33	1,63	3,50	0,84	2,33	0,58	2,67	1,86
Configurações	2,50	1,05	1,67	1,15	3,00	1,79	2,67	1,37	1,67	1,15	3,17	1,72
Documentação	2,50	0,55	1,67	0,58	3,00	1,41	2,83	0,75	1,67	0,58	3,17	1,47
Plataforma Dr.Energia												
Aprender	3,17	0,75	3,33	0,58	4,40	0,55	3,33	0,82	3,00	1,00	4,20	1,10
Partilhar	2,83	0,75	2,67	1,15	4,20	0,84	2,83	0,75	3,00	1,00	4,20	1,10
Comparar	3,00	0,89	2,67	2,08	4,20	0,84	3,00	0,89	2,67	2,08	4,20	0,45

QUADRO 57_Estatística descritiva da usabilidade da plataforma do SGC e plataforma Dr.Energia

	Utilização (nada 1 - 5 muito)						Contributo eficiência energética (nada 1 - 5 muito)					
	G1		G2		G4		G1		G2		G4	
Plataforma SGC	M	DP	M	DP	M	DP	M	DP	M	DP	M	DP
Consumos/gráficos	3,33	1,51	3,67	1,53	4,33	0,82	3,33	1,37	3,33	1,15	4,50	0,84
A minha casa	3,83	0,98	3,00	1,00	4,00	0,89	3,33	0,52	3,00	1,00	4,17	0,98
Eficiência energética	3,67	0,82	2,33	0,58	3,33	1,63	3,50	0,84	2,33	0,58	2,67	1,86
Configurações	2,50	1,05	1,67	1,15	3,00	1,79	2,67	1,37	1,67	1,15	3,17	1,72
Documentação	2,50	0,55	1,67	0,58	3,00	1,41	2,83	0,75	1,67	0,58	3,17	1,47
Plataforma Dr.Energia												
Aprender	3,17	0,75	3,33	0,58	4,40	0,55	3,33	0,82	3,00	1,00	4,20	1,10
Partilhar	2,83	0,75	2,67	1,15	4,20	0,84	2,83	0,75	3,00	1,00	4,20	1,10
Comparar	3,00	0,89	2,67	2,08	4,20	0,84	3,00	0,89	2,67	2,08	4,20	0,45

Source: Mateus et al (2013)

The results of the use and perception of the contribution to the energy efficiency of the participants of the 3 test groups (monthly, weekly and living lab) are presented relating to the features available in the GSC and Dr.Energia platforms, and interactions received from Dr.Energia.

In general, participants often used the platform (SGC groups Mtotal = 3.10), followed by Dr.Energia platform (Mtotal groups = 3.39). This usage is most evident in the group living lab, and especially in relation to Dr. Energia platform.

A detailed analysis of the use of the SGC enables important to note the level of use of each menu differences. The menus of the most widely used management system intakes are "consumption / graphics" (Mtotal groups = 3.78), "my house" (Mtotal groups = 3.61), followed by the menu "energy efficiency" (Mtotal groups = 3.11), demonstrating a strong sense of perceived type of information accessed these menus meet the menus "settings" (Mtotal groups = 2.39) and "documentation" (Mtotal groups = 2.39) utility.

Regarding Dr.Energia platform, participants accessed the menu essentially "learn" (Mtotal groups = 3.63), followed by the areas 'compare' (Mtotal groups = 3.29) and "share" (Mtotal groups = 3 23), which are mainly used by the group living lab (M = 4.20). The lowest use the menu "compare" may be associated with redundancy between the information in this menu and the feedback that was received directly by the monthly and weekly groups in the interactions of figure Dr.Energia (SMS / email).

In addition to the perceived level of use, the information contained on the platforms is perceived as having an important contribution to the efficiency of energy consumption, either in Dr.Energia (Mtotal groups = 3.38) or in the GSC platform (Mtotal groups = 3 02). This perception is more manifest in group living lab.

Regarding the received communications from the Dr.Energia (SMS / email), participants reported significant use of the content of messages regarding feedback of consumption data (MG1 + G2 = 3.28; Mllab = 3.80). According to the plan of experimentation, communication and humanization of this relationship had a different character in the weekly and monthly groups (planned) with the group living lab (ad- hoc), which may explain the differences in perception. Furthermore, the participants do not perceive forms of interaction and communication with the figure of Dr.Energia as intrusive (MG1 + G2 = 1.33; Mllab = 1.00). It may also be noted that there is a perception that communication Dr.Energia positively contributes to energy efficiency (MG1 + G2 = 3.08; Mllab = 2.73). This perception is most evident in the monthly group.

The dimension of usability was also explored during the interviews and the living lab sessions held. The positive perception of the usefulness of the information received or accessed through the consumption management systems (CMS) and learning and sharing (Dr.Energia), the importance of

feedback on consumption, the humanizing factor, as well as some of the difficulties felt, was explicit in some of the statements of the participants.

An area relevant to the analysis of the use of systems and forms of communication available during the study information is the interactions of / with figure Dr.Energia. The data for these interactions (either within the planned or unplanned experimental mechanical and received from the participants) are shown in table 38.

Table 38 - Interactions from/with the stakeholders

QUADRO 59_Frequência de interacções outbound (Dr.Energia) e inbound (participantes) por grupo, tipo de canal e tipo de interacção

G1 - GRUPO MENSAL								
	Outbound - Dr.Energia				Inbound - Cliente			
Canais	Planeado	Não planeado	Respostas Dr.Energia	Total	Dúvidas	Informações/ sugestões	Outros	Total
SMS	70	15	0	85	n.a.	n.a.	n.a.	0
E-mail	70	3	1	74	0	0	0	0
Telefone	43	10	0	53	n.a.	n.a.	n.a.	0
Plataforma Dr.Energia	70	1	1	72	1	4	0	5
G2 - GRUPO SEMANAL								
	Outbound - Dr.Energia				Inbound - Cliente			
Canais	Planeado	Não planeado	Respostas Dr.Energia	Total	Dúvidas	Informações/ sugestões	Outros	Total
SMS	228	10	0	238	n.a.	n.a.	n.a.	0
E-mail	228	11	5	244	3	1	0	4
Telefone	92	15	1	108	n.a.	n.a.	n.a.	0
Plataforma Dr.Energia	228	2	2	232	4	7	1	12
G4 - GRUPO LIVING LAB								
	Outbound - Dr.Energia				Inbound - Cliente			
Canais	Planeado	Não planeado	Respostas Dr.Energia	Total	Dúvidas	Informações/ sugestões	Outros	Total
SMS	0	4	0	4	n.a.	n.a.	n.a.	0
E-mail	0	29	7	36	2	2	2	6
Telefone	9	30	0	39	n.a.	n.a.	n.a.	0
Plataforma Dr.Energia	0	13	13	26	8	25	2	35

Legenda:
Planeado = interações previstas no cronograma.
Não planeado = informações, lembretes, etc.
Resposta Dr.Energia = respostas a dúvidas, comentários, questões sobre o SGC, etc.
Informações/sugestões = informações sobre hábitos de consumo ou acções de eficiência/sugestões comportamentais eficientes.
Outros = problema técnico/avaria, agendamento de visitas, desistência, alertas/lembretes, "reclamação".

nota: Para efeitos de análise de resultados, as interacções "Perguntar ao Dr.Energia" consideram-se interacções na plataforma, apesar de a comunicação, a partir da recepção da mensagem, ser através de e-mail.

Source: Mateus et al (2013)

It is noted that the weekly group has a greater number of shares of questions and suggestions to the monthly group, which may be an indicator of the interaction of the Dr. Energia. The living lab group, highly encouraged to share during the study, is the group where there is a higher level of participation in Dr. Energia platform.

The contents of these shares is illustrative of the commitment of the participants in the promotion among the community of test consumption more efficient and responsible energy.

In addition to these interactions, there are some additional contacts (NSMS = 17; Nplataf dr.e-= 4) for the participants as a way of boosting the area Dr. Energia sharing platform, as well as marking sessions with the group living brand. During this phase of experimentation, were also received 5 emails from service request via the CMS platform, which had a response from the technical team of the SGC.

The interviews, as well as the living lab sessions also allowed the collection of data on the perception of what would be an ideal platform for critical success factors, and which the perceived value of the service provided during the study.

5.4.3.5 Working Research Question

This way, the further research question (WRQ5) will take in consideration all the findings into a specific question: *if it is possible gather the citizens and the civil society to be a part of the innovation processes of the organizations?.* We continue to push the innovation boundaries and we can for sure agree that, to innovate in a company we must have and follow a specific methodology that has, in its core the following considerations:

An integrated innovation flux along all the innovation process - since the observation until the go to market phase, composed by a set of sequential stages, phases and tools that follows de mechanic of divergence at the beginning and convergent at the end for a certain conclusion or concept. This concept is the starting point the a deeply exploration in other subsequent tools, stages and phases in order to generate a continuous integrated innovation flux of information and knowledge;

Motivation can be enhance by activating dialogue between participant stakeholders - It can be achieved from the appliance of the co-creation an open innovation methodologies and fostering the stakeholders' participation within companies decisions and ideas. This leads to a high stakeholder involvement and belonging sense, new ideas and new approaches that match the markets, trends and consumer's needs.

Metric System – to deepen the quali-quanti evaluating model in order to measure and to analyze the performance of the innovation process and to define general or specific tactics or strategies that enhance the performance of the process to achieve better results and to continuously improve the method, tools, methodology and approaches.

A technological platform or technological tools - In order to simplify and turn easier the consumers access to the innovation processes and to manage wide amounts of citizens to generate innovation. This

technological approach manage, systematize, analyze and provide just in time results that are useful to define more precise innovation tactics as well as to study trends, behaviors.[8]

5.4.3.6 Findings

We can observe that the experimental plan and living lab developed, characterized by the implementation of human interaction and technological tools for efficiency in energy consumption, led to significant effects at different levels.

In addition to significant reductions in energy consumption, we observe some behavioral changes with potential for significant impact.

Moreover, the results allow concluding it by the high degree of satisfaction with study participation, as reflected notably in reported emotional states.

Participants also have a very positive perception of the experience, describing its contribution to self and family, as well as the community level.

An analysis of associations between different indicators can better understand how they interrelate and how they can explain the level of satisfaction with the experience that the participants of the monthly, weekly and living lab groups reveal at the end of the experimentation phase. The study of the effects of predictors indicators of usability, experience and perception of pro-environmental (particularly the use of apparatus and equipment) behaviors show that overall satisfaction with the experience is essentially associated to a positive perception about the contributions of the study ($\beta = .653$, $p < .001$) and the level of expressed pro-environmental behavior ($\beta = .297$, $p < .05$) ($R2aj = .633$, $F(2,21) = 20.846$, $p < .001$). On the other hand, the perception of usability of technological tools and interaction with Dr.Energia not associated directly to the general satisfaction, but rather has an important predictor effect of perceived experience ($R2aj = .262$, $F(1,22) = 9.174$, $p < .01$, $\beta = .542$, $p < .01$). These results are shown in schematic form in the figure 61.

[8] C4S – Citizens 4 science mobile app that IDEAS(R)EVOLUTION research group is developing currently

Figure 61 - Behaviors, Perceptions and Usability results

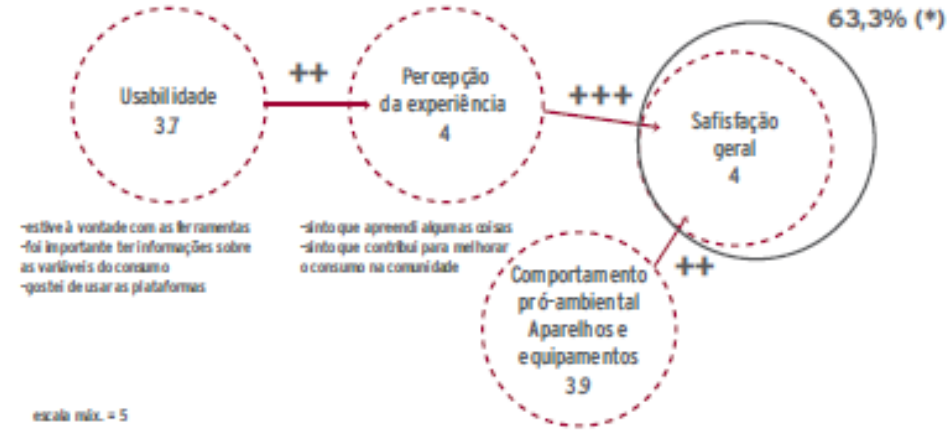
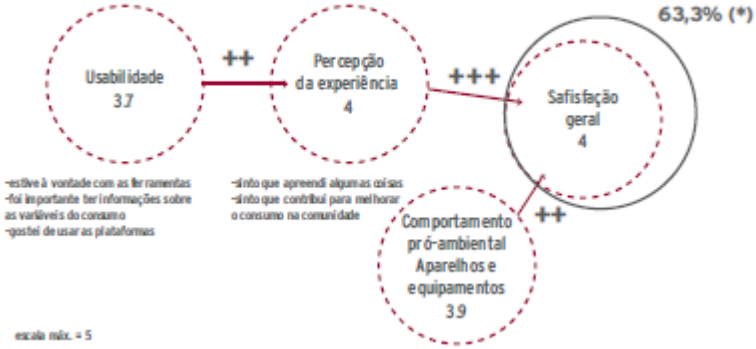


Figura 11 - Resultados comportamento, percepção e usabilidade

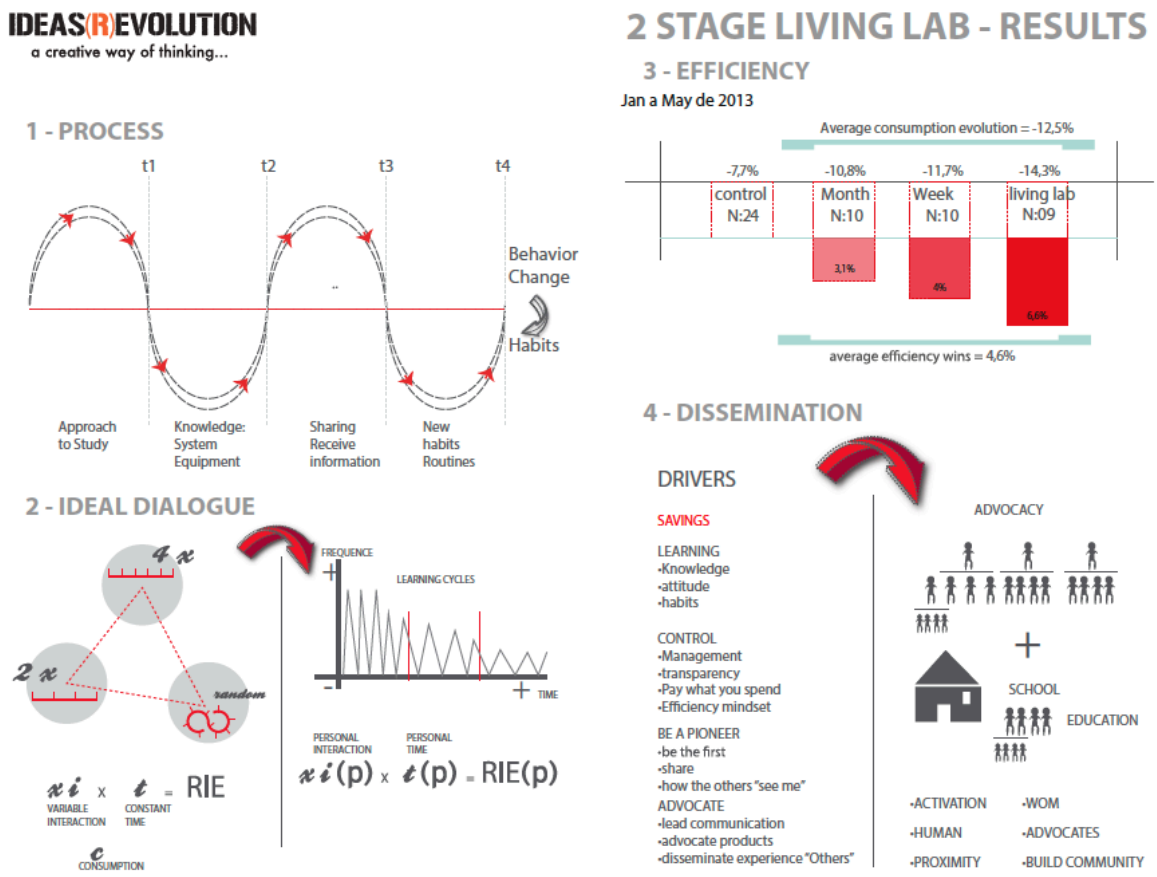


Source: Mateus et al (2013)

The results concerning the usability and perceived consumption management system, the Dr. Energia platform and interaction with the persona of Dr. Energia demonstrate a strong agreement and a positive perception of these devices, as well as important effects on the consumption efficiency, allowing to conclude about the important implications for the development of integrated services to promote efficiency and management of energy consumption.

Dua to the visual and analytical techniques of the IDEAS(R)EVOLUTION methodology we can summarize the main results obtain along the full process in four areas: (a) Living Lab results; (b(how citizens adapted to the process; (c) the ideal dialogue frequence and (d) how to disseminate and communicate the behaviors on energy consumption (see figure 62).

Figure 62 - Final Feedback confirmatory phase



Source: Mateus et al (2013)

5.4.3.7 Virtues and improvements opportunities

The following table 39 presents the full overview of the EDP case, focused on what was validated, the new working research questions and the new tools and operational models created.

Table 39 - Overview EDP

		STAGES						
PHASES	**W**	INVOLVEMENT	INSPIRATION	IDEATION	INTEGRATION	IMPLEMENTATION	INTERACTION	RESEARCH TECHINQUES
DIAGNOSTIC	1	Internal and External Analysis						
PREPARE		Body and Sensorial Gym Belbin						Bodystorming Surveys
OBSERVE	2		Forecast					AEIOU
UNDERSTAND	2		Usability Test					Behaviour Map
DEFINE	3		Consumer Journey					Cognitive Mapping
IDEATE	4			Brainstrom Exploration Stations In-Out Matrix				Creative Toolkits Creative Toolkits
EXPERIMENT	5 6a				Sketcher Prototype Internal Delphi			Business Origami Business Origami
VALIDATE	6a 6b				360º Reverse Thinking Innovation Iceberg External Delphi Triz			Cognitive Mapping Cognitive Mapping Surveys A/B Testing
SISTEMATIZE	7					Blueprint		Business Origami
TEST	L2						Living Lab Metrics Observatory	A/B Testing Critical Incident Technique
DIALOGUE	8						Always On Feedback Box	

Source: the author

The following table 40 presents the final integrated overview from all phases regarding outcomes, validated tools and operational models, new models developed and needs or opportunities to improve the IDEAS(R)EVOLUTION methodology.

Table 40 - Overall view on EDP case

	OUTCOMES	TESTED AREA	VALIDATED	CREATION	
EDP	•Full report •14 innovative ideas •3 final prototype ideas •1 final go to the market idea	Large Company	METRICS IDEAS CLOUD MANUAL PROTOCOL	•Living labs	•improvement regarding organizational impact (change) concerning innovation culture and sisteme •new tools (DIY) better diagnostic and ideation tools, more engaging and user friendly •improvements inIdeas Cloud Platform: more social, more collaborative, more project management and deeper metrics

Source: the author

5.5 Final conceptualization for IDEAS(R)EVOLUTION methodology

After finishing the EDP case study and analyzing the results obtained in the experimental research conducted over the past four years at IADE and in both universities who collaborated in the development of the methodology IDEAS(R)EVOLUTION, the FH Vorarlberg in Austria and Karel de Grote Hoogschool in Belgium, we could proceed to the final conceptualization of the methodology considering this thesis because the research project which supports the development of the methodology is an ongoing process.

5.5.1 Validated improvements after EDP case study

The overall results presented showed that most of the improvements introduced after the conclusions of four pre-experimental project, were validated in the case EDP case study implementation, namely:

- Leadership

The protocol established and approved by the EDP was very clear in terms of application of "design" and the "form" of the all operation, specially the project team created among investigators IDEAS(R)EVOLUTION and the EDP collaborators. Since the beginning this project was considered strategic for the EDP Administration and marketing direction. This assumption had the immediate and lasting the respect demonstrated towards this project by all internal and external stakeholders of the EDP and also the definition of a clear leadership, as well as, it was possible to set clear goals to accomplish and different milestones to present intermediary report for example. All stakeholders were initially informed and therefore conscious of this “design”. Another important element was the notion that the end result of this project would be to present to the administration and would result in the adoption and implementation of the best innovation ideas.

- Recruitment

The recruitment protocol was created respected and enhanced with the know-how on the existing EDP team on their customers and employees. The level of working groups in the workshops, the introduction of the Belbin test resulted in balanced groups as well as the scripts of conversation and dialogue with stakeholders have caused all showed high degrees of motivation and attendance in participation in different moments of co-creation.

- Knowledge Transfer / Do it yourself

EDP followed the protocols concerning the existence of "observers" and "controllers" in the process for your learning. As a result we were informed that these EDP employees have replicated some of our tools and models other internal projects within EDP marketing department.

- Implementation

Results from the Living Lab and use EDP / Ideascloud Activation Platform (Dr. Energia) were exemplary. The results obtained by means of these models demonstrate that their input in the process and system IDEAS(R)EVOLUTION constitutes an important development.

5.5.2 International teaching cases - Academic stakeholders for feedback

The researcher conducted several projects in two European universities, during the development period of this dissertation:

- Karel de Grote Hogeschool in Antwerp, Belgium – Management course
- Fachhochschule Vorarlberg in Dornbirn, Austria – International management course and marketing master course.

This experience was conducted in academic context at two levels:

- Academic context - using the IDEAS(R)EVOLUTION methodology to lecture, intensive week classes with the purpose of helping students develop innovation projects for local SME's.
- Research context - which was involved in research teams from each university, sharing and disseminating the model IDEAS(R)EVOLUTION with its researchers.

Each intensive week classe functioned as an implementation of the entire process of IDEAS(R)EVOLUTION, where each working group composed of five students had to:

- Pre select a local company with a innovation problem or challenge;
- Realization, as pre-assignment, of a previous diagnosis in the company following the script and IDEAS(R)EVOLUTION methodology tools;
- During the week, with the researcher monitoring, they had to apply the IDEAS(R)EVOLUTION blueprint of workshops and respective tools;
- Field research to perform the observation and validation tasks;
- At the end of the project, presented in Pitch format its solutions to companies.

For the purpose of this thesis, the researcher conducted a final co-creative workshop in each university to analise the results of projects implemented in the two partner universities. The main goal was to: (a) have feedback from the experience from different perspectives from the students and peers point of view, as well as, the managers from the local companies; (b) understand the real impact of the model implementation with the local organizations and business and finally (c) understand, if possible, the impact of the projects for the local economy.

This workshop had the participation of internal and external stakeholders that included peer teachers, researchers, students, managers from the local SME's, parents, representatives of the management of the territories where they operate and business/entrepreneurial organizations.

We use the IDEAS(R)EVOLUTION tools from the Involvement and Inspiration stage and Understand and Define phase.

It was a very open discussion of ideas, rich and clarifying about the potential application of the model in the context of real life and linking academia with businesses and the community. After analyzing the workshop contents and ideas, the researcher still found space for improving the model, namely, the working groups identified tree types of impact that the methodology and the process can have in an organization:

- Culture - by Culture we mean the impact on changing the mindset and attitude of the employees of the organizations in the innovation effort, the impact on management and leadership of the companies targeted for culture and for more informal Open and bottom-up structures. Finally a great emphasis on creating an entrepreneurial spirit.
- Community - By Community we means the impact on re-orientation of innovation efforts of organizations to create value for the community, for people and for the common good. The methodology IDEAS(R)EVOLUTION demand whenever any idea of innovation of a product, service or business model for instance is always associated with a higher social purpose and social meaning.
- Connectivity - By Connect ivy we means the impact on the creation of permanent links and continue dialogue between the organization, all employees and external stakeholders, ie, customers, partners, opinion makers. This impact is enhanced by the collaborative platform supporting innovation effort in co-creation

5.5.3 Improvement

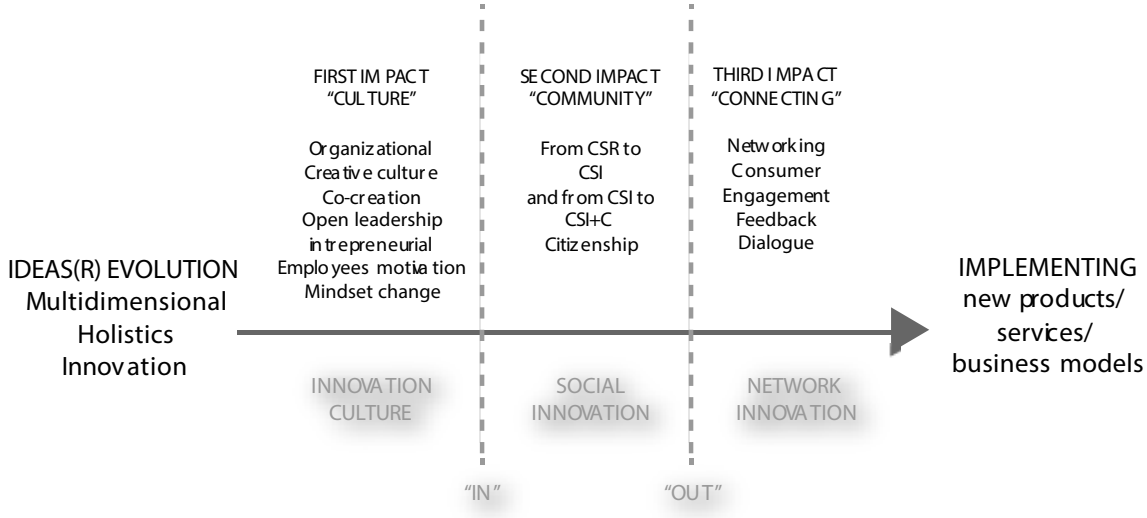
Based on the conclusions of the EDP case and co-creative workshops in the two partner universities, and following the action research principles, we introduced further improvements in the model IDEAS (R) EVOLUTION, namely:

A- First Improvement- New impacts model

It is also important to state that this inputs helped the researcher to define a new Impacts model (see Figure 63). We should also point out that, this model is also the result of an academic and business partnership with Professor Pieter Sprangers a researcher / lecturer at the University of Antuerp and Karel de Grote Hoogschool (the Belgium participant in this thesis development). We conducted a careful analysis regarding the results obtain by the several students teams that have been using the IDEAS(R)EVOLUTION methodology and process in their innovation courses or that attended the IDEAS(R)EVOLUTION studios/creative labs or seminars along this 4 years as weel as the final co-

creation workshop conducted. We observed that this tree main focus culture, community and connectivity were common in the results of innovation final reports submitted by the student's teams.

Figure 63- Impacts Model



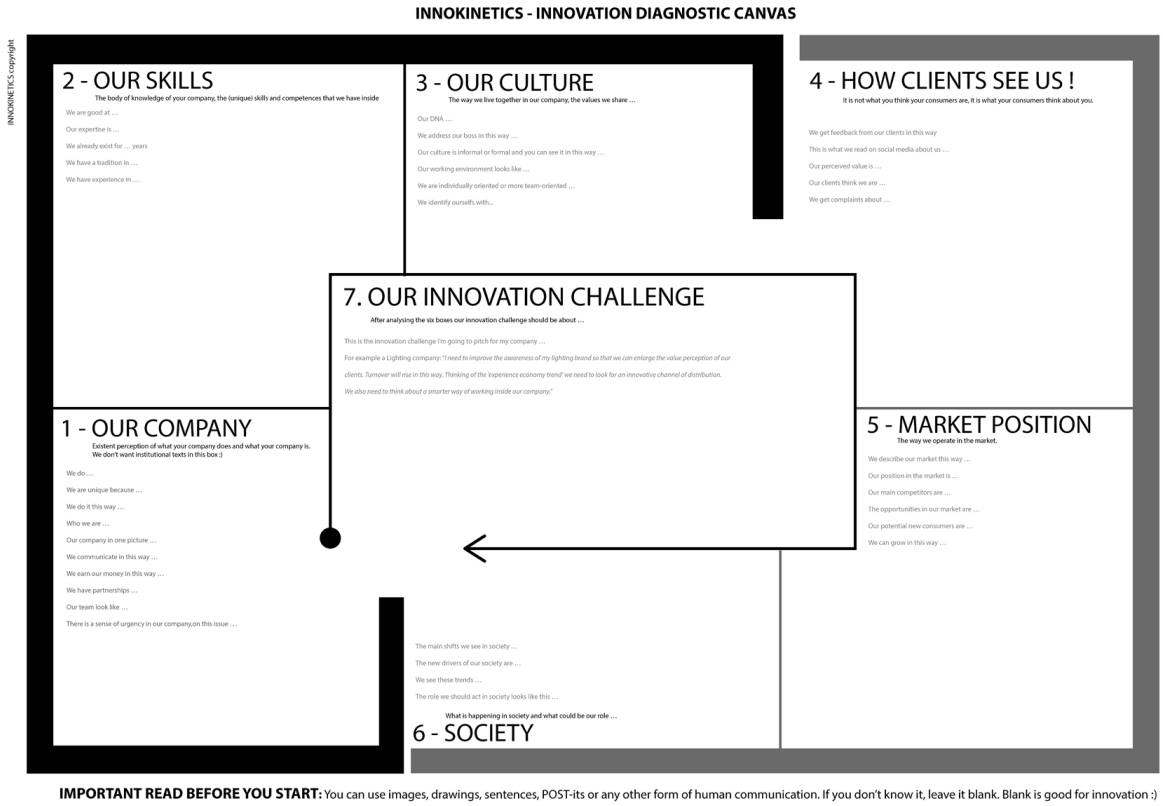
Source: Mateus & Sprangers (2014)

B- Second Improvement – New DIY tools

The experts workshops, the EDP case study and the observation of students implementing the methodology, made us understand that the 44 tools of the IDEAS(R)EVOLUTION operating blueprint are still a small obstacle regarding the philosophy of knowledge transfer and DIY do it yourself, that it is one of the thesis research questions and initial hypothesis. Although being visual and systemic the 44 tools, keep having as feedback (even in the comments of the working groups in different universities) that they are difficult to understand and implement without the IDEAS(R)EVOLUTION facilitator and team supervision. The researcher attributes this observation to the fact that they have been drawn / designed according to their own system of thinking and "way of doing". For example the tools were not thought to be self-explanatory. So it was important at this stage and after this examination the development of new simplified tools designed from scratch to be self-explanatory and to be performed in accordance with the basic instructions without the aid of a team member or IDEAS(R)EVOLUTION facilitator. The researcher decided to create these tools in co-creation with Professor Pieter Sprangers and integrate them in IDEAS(R)EVOLUTION system as final deliverables of each of the 11 phases of the blueprint. We already created the first tools and we are currently testing them in one training program for entrepreneurs – The Voka innovation Academy, which is being held in Belgium together with Professor Pieter Sprangers and supported by Voka, Flanders' Chamber of Commerce and Industry. These new and simplified tools (see figure 64 and 65) follow a simple concept:

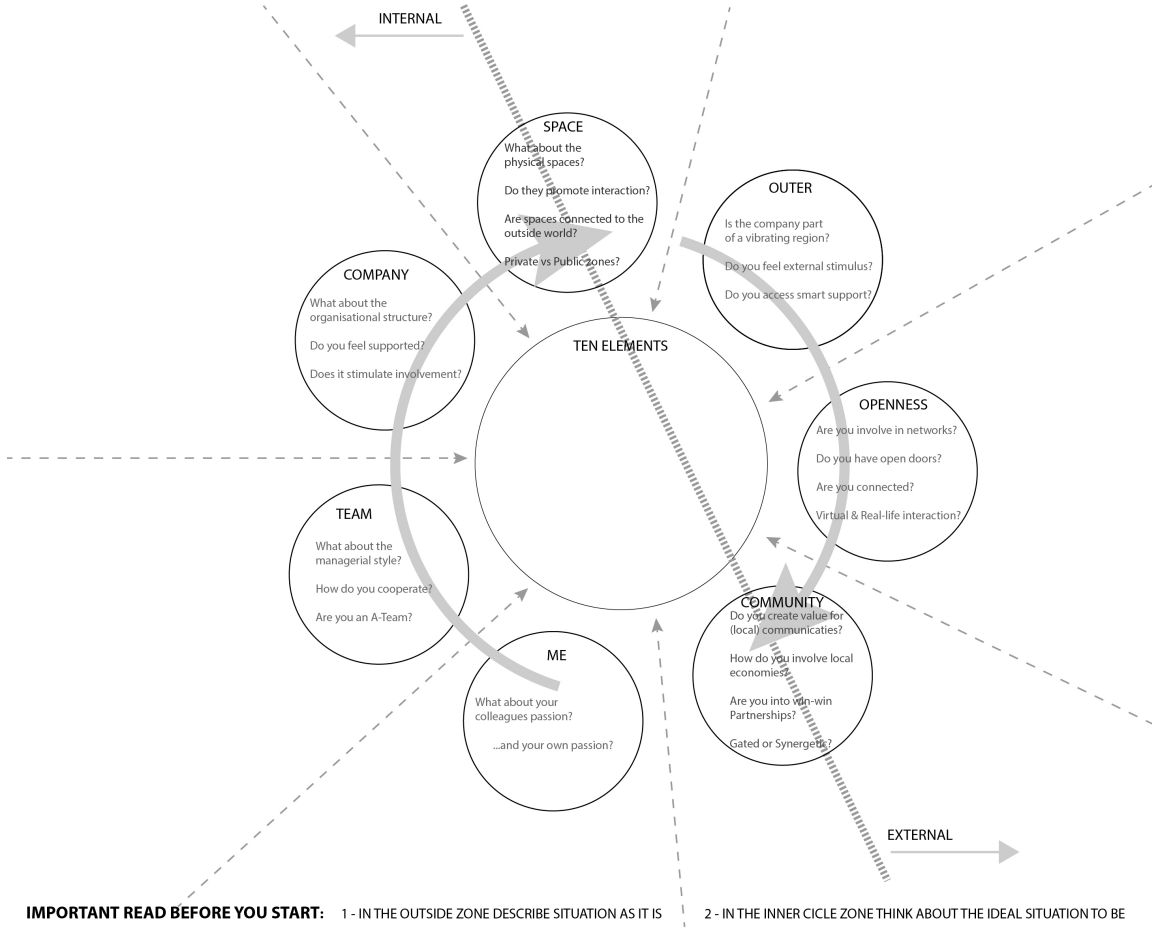
- They must be self-explainable;
- Include simple an “how to do it” manual or tutorial;
- They must be easy to make the analysis of contents and results;
- They most finish with the right information that is the starting point of the sequential phase and stage in the innovation process.

Figure 64 - Diagnostic Canvas



Source: Mateus & Sprangers (2014)

Figure 65 - Involvement and culture canvas



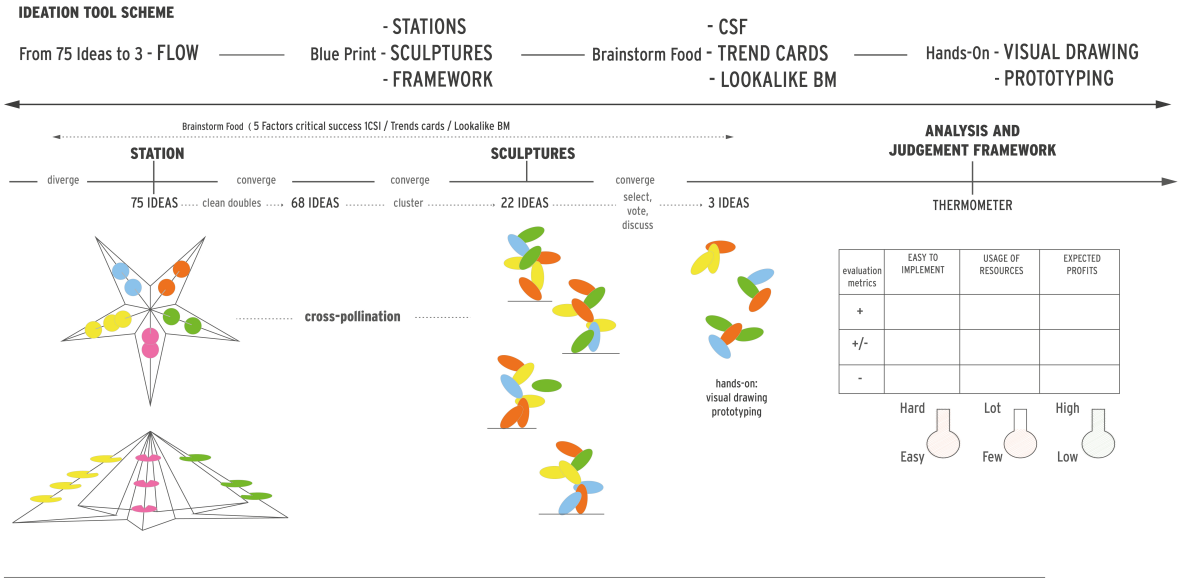
Source: Mateus & Sprangers (2014)

Also regarding the improvement of the DIY philosophy the researcher, together with two IDEAS(R)EVOLUTION research team members (Aveiro University Phd in Design candidate Susana Leonor and IADE PhD candidate Sofia Martins), and also with the new research partner Professor Pieter Sprangers, decided to focus the development effort on the Ideation stage of the innovation process. The reasons were: (a) the feedback from participant stakeholders about the intangibility of the normal brainstorming techniques for people not experienced on creative thinking; (b) the need to "see" the full ideas cycle process in a more visual way and (c) the need to introduce something new in this crucial stage that would bring to the DIY intended goal the some playfulness and creative mood that people experience in workshop sessions facilitated by the researcher and the IDEAS(R)EVOLUTION research team collaborators.

Together we development a new approach, consisting of three sequential phases, unify by a single concept bring the ideation stage to a 3D paradigm:

- Phase 1 – Stations – Connected to Divergence – is the three-dimensional divergence game, with the following characteristics:
- Its installed a base that we call “station” consisting of five axes. each of these axes corresponds to one of the innovation challenges, according to the IDEAS (R) EVOLUTION process, the working groups had to generate define stage - what if and how could we questions;
- Are given to each group member a number of plastic parts in which circular called INNOS, having space to write ideas and four cuts that allow it to be assembled at the station or other Innos;
- In this way, not only the ideas are represented in a tridimensioanl format as well as there is a greater stimulus for each working group member to complement ideas raised by other members;
- Phase 2 - Sculptures – Connected to Convergence - It is a dynamic and fun way to make a selection and clustering of ideas, with the following sequence:
- From the previous phase, the ideas that already have clusters of characteristics are taken and assembled in the shape of "Sculptures";
- Then we ask to group members to group similar ideas, complementary or when together form a new concept. They are again in a “sculpture” to be discussed and classified.
- Phase 3 – Evaluation and Analysis framework – Thermometers – connected to Selection and filter. After classified and reduced the key ideas, is necessary to evaluate in consensus the ideas potential, with the following steps:
- Using a comparative evaluation tool that we call thermometer, ideas are analyzed through the following pre-defined parameters: (a) Easy to implement; (b) use of resources; (c) expected profits.

Figure 66 - New Ideation Model



Source: Mateus & Sprangers (2014)

C- Third Improvement – IDEASCLOUD 2.0 version

The investigator is also developing the evolution of IDEASCLOUD platform to version 2.0. The focus is the creation of new areas of networking designed to raise the innovation efforts of SMEs to levels greater critical mass and greater synergies, through models of co-creation among enterprises, companies and institutions, companies - institutions - users - consumers, using the platform, or online.

The main concepts driven this evolution of the IDEASCLOUD platform as to do with the following objectives:

- To enhance the human interface of the platform, mainly the intuitive human relationships and dynamics showed in the physical collaborative and participative environment of the IDEAS(R)EVOLUTION workshops.
- To become an aggregator "Hub" that centralizes and manages all the information of an innovation process in co-creation, allows the realization of several methodological steps in a process of innovation and enhances the observation effort, obtaining primary information to ideation, experimentation, experience, usability and detailed user feedback thus reinforcing all the proven methodology of the Living Lab usefulness within a virtual online environment.

The following features should frame this concept development:

- Multichannel Integration - Mobile, sms, email, telephone, video streaming;
- Total focus on User: direct channels to dialogue;

- Guidance for obtaining ongoing feedback, ideas, experiences, actions, for the living lab or the innovation challenge;
- Possibility of construction, definition and parameterization of qualitative or quantitative metrics;
- Pro-activity in motivation, engagement and building bridges for dialogue among participants with strategies of pre-defined user stimuli according to their initial profile;
- Interactivity platform that allows insights to be built in collaboration between users;
- Possibility of users to choose how to share: via smartphone or tablet. This option allows users to be more involved with the study and at any time can put their ideas or experiences.

IDEASCLOUD online platform will be designed in five major innovation cycles of the Living Lab process: Profiling system (assessment and identification of stakeholders), Information sharing (obtaining and sharing information), Concept design (ideation and generating product concepts and service), ideas testing (usability and testing of innovative ideas) and Metrics (daily narratives, experience and key indicators performance: KPIs).

The big advantage of this platform will that it is capable of managing all phases of a process of innovation and experimentation in a single platform, a single access, thereby enabling the centralization of information, the creation of a database and knowledge easily accessible and great usability, both in terms of end user (user friendly design) in terms of access to metrics and indicators of usability analysis and performance metrics (KPIs), all in real time to improve the analysis, evaluation and adjustment Living operation Lab.

The IDEASCLOUD operational areas and dashboard (see figure 67) is:

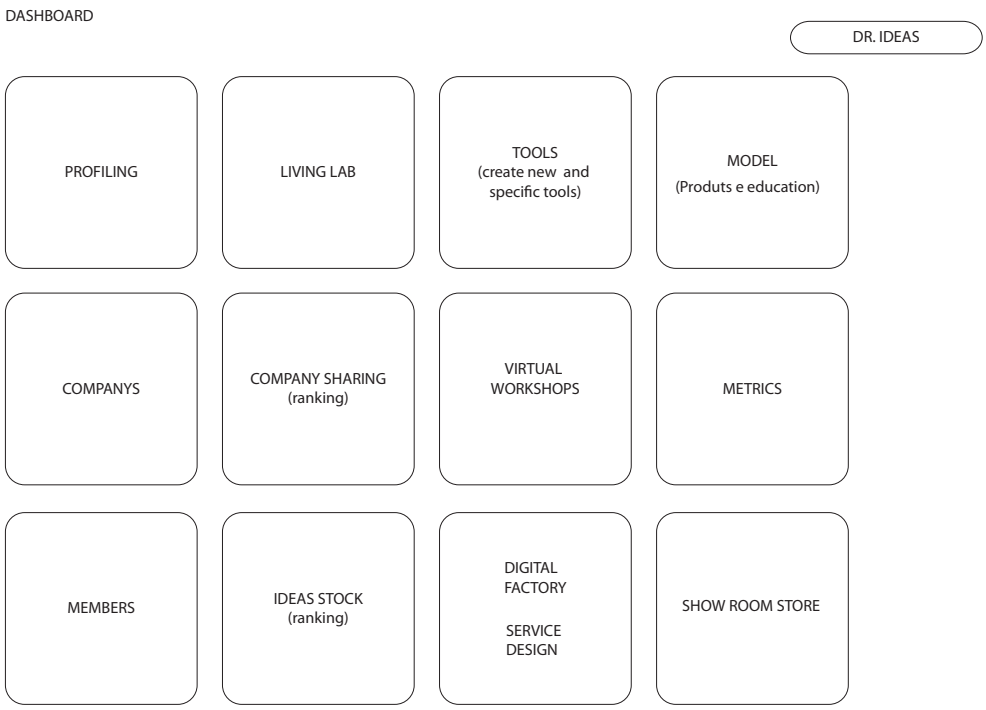
- Profiling & Company – The company define profile and roles for the collaborators;
- Login – Individual or company login;
- Initial Test - Users study participants respond to an evaluation test and an individual characterization, where we can analyze the "learning profile"[9] as well as its possible to establish efficient working groups;
- Information Sharing – Company Sharing and Members;
- Learning - Where the provider puts the information that the organization want to share with the users such as personalized tips, questions for understanding the motivations and behaviors they want to evaluate, for example:

[9] This feature is guaranteed by Professor Pieter Spranger's Learning above the ruler methodology that as been develop in a research partnership between the company Domo de Refontiro e the University of Antuerp. For more information about this methodology please consult: http://www.lerenbovendemaat.be/home-en

- Share - In this area users can share ideas, consumption and user experiences and make questions among themselves. Can also vote on the ideas of others, comment and classify those ideas;
- Act - allows the operational management of collective actions such as booking virtual meetings, online workshops, as well as information relating to the community actions that are relevant to the group's living lab development;
- Compare - We intend to put a dimension of community, sense of group that allows the assumption of the WE in complementarily with the ME. In the case of energy, for example is the viewing area consumption of each participant compared to the average community;
- Concept Design – Virtual workshops & digital Factory:
- Online Workshop - area to conduct "Living Labs" by introducing the collaboration and brainstorming Online technology - Whiteboard,[10] where users can view and devise together at the same time on the same desktop that simulates a blank slate. In interaction is enhanced by audio and video element that allows users to see and hear at the same time generating ideas on the whiteboard. It is intended to engage stakeholders in generating ideas about products or services;
- Meeting Room - room with video and audio technologies where you can perform a session at a distance of Living Lab according to the methodology proposed innovation;
- Testing Ideas – Living Lab & Ideas Stock;
- Daily Experience - Space for users to place systematically feedback on your experience of using a new product or service in testing or market entry;
- Rating of Ideas - Simple viewing of the evaluation of the users on the ideas shared on the platform or in the area want to learn in the area share;
- Usability testing - Allows creation of experimentation and validation tests of the ideas of innovation, combining qualitative and quantitative tools to better interpretation of studies;
- Metrics;
- Narratives - Diary where users post their feedback of the whole experience;
- Surveys - Construction targeted and focused surveys in which the interaction is easy and visualization of the results most be simple;
- Analytics - quantifies all the traffic and interaction of each of the users (via IP) and each group of Living Lab.

Figure 67 - Dashboard proposal for IDEASCLOUD 2.0

[10] https://realtimeboard.com/ - Online workshop environment



Source: Mateus & Sprangers (2014)

6 CONCLUSION

What we realized after the time IDEAS(R)EVOLUTION has been implemented on different organizations was that when we joined the dots and fully understood the elements in a Holistic perspective, we achieve an cultural change more than a management technique or tool. The idea was larger, with far-reaching economic, social and ethical implications.

As Mikkel Harbo (director of business development and operations at the Danish company Systematic Software) stated: …(…) Once you introduce this, it affects everything in the organization – the way you manage, the way you work. Everything is different. It changes the game fundamentally (…).

It is for this reason that we call IDEAS(R)EVOLUTION an Multidimensional and Holistic innovation system. It goes to the root of what makes things happen in the world. The workplaces and the organizational culture within the organizations become drastically different from traditional workplace. It implies fundamental shifts in how people think, speak and act at work regarding to innovation management focus.

As largely demonstrated on the bibliographic review, the problems of today's workplace are not the personal fault of the individual managers. They are largely the fault of the system they are implementing, which relentlessly constrains the capacity of people to contribute, limits the firm's productivity, and practically guarantees that clients will be dissatisfied.

The emerging approach to managing is proving to be not only more productive than traditional management. It also liberates the energies, insights, and passions of people. It creates workplaces that enable the human spirit. It delights clients and creates shining eyes among the people doing the work. That is why IDEAS(R)EVOLUTION is human based and human centered.

IDEAS(R)EVOLUTION is in its essence a call for action, we think we're at a kind of inflection point. If you're a CEO, and if you're waiting for that model to emerge, that's not a good thing. If you're waiting to benchmark somebody else, that's not what leaders do. Leaders ACT, develop and DO.

In most organizations, we should not call people employees anymore, but we should call them team members or associates. And we recognize that in the creative economy we live, most of that wealth creation is coming from people out there rubbing up against customers, innovating certainly in a service economy, the experience economy. We talk more and more about co-creation with our customers, with our business partners. Our methodology provide operational models and tools to systemize this collaborative, networking and co-creative approach.

A- Main literature learnings

The main learnings from the continuous literature review performed together with tacit knowledge gained at the fieldwork workshops, interactions, conversations and observations along the development stages of IDEAS(R)EVOLUTION methodology, allowed the researcher to define initial principles:

- From "people to people":
- **User-centered innovation** – Innovation is performed by and/or in close interaction with users.
- **Innovation of products/services/processes** – The innovation process or system also supported by Living labs approach, should be able to, in a flexible way, handle various types of innovation.
- **Users as innovators** – Users are actively involved throughout the development from idea management to concept development
- **Users themselves are experts in their own area** – No one knows better what a user wants/needs than the user her/himself. Therefore, solutions based on real user's statements of needs/wants will be more prone to succeed.
- **Embrace user knowledge** – User must be seen as those most knowledgeable about their processes.
- **Expand user participation** – Consistently evaluate how user participation can be expanded in the "framework".

- Strategic challenges

One of the major new insights from open innovation, based on co-creation and enabled by ICTsoftwares and IT platforms, is the effect of getting input from a large number of users, but this also requires new methods for dealing with the amount of input. This means that innovation itself is a complex process. The researcher on innovation should aim to "simplifity this complexity" by introducing Smart and intelligence analysis and methods to the knowned design thinking, user-driven and open innovation based innovation systems, focus on:

- **Mass involvement** – The quantity of input overrides the contribution of single geniuses.
- **Crowdsourcing** – Ideas and solutions are discussed, developed, tested and refined based on stakeholder's open discussions.
- **User communication** – Establish bilateral – 24/7 dialogue channels are needed for user-stakeholder communication and between users in the innovation process.
- **Allow a rich set of channels for contribution** – Relying in the innovative capabilities of individual contributions through various types of media.

- **Create milestones and Kpi's in the innovation process** – Organizational need to stand aside the "simple success formulas" that are promoted in the market. Innovation is more then 1-2-3 approachs based on intuition and "we just need good ideas" mindset. Innovation needs data gathering, needs deep information to better decision making in the different strategic points to the innovation process to achive the goals.

- Business values, economical gains as driving forces.

Economical gains, user benefits and potential stakeholder gains are the driving forces that supports the innovation process and shows all parties involved what it is all about.

- **Value for money** – Stakeholders should be attracted to join/maintain interest in the innovation process due to the fact that it provides increased insights and in long term profitability.
- **Economic sustainability** – The co-creation based innovation processes, IT enabled, should be able to become an organizational structured feature for the company. When incorporated on the organization culture, management style and innovation system, it accomplishs economical sustainability.
- **Satisfied customers => Profit** – The main aim should be "Satisfy customer/user needs and wants", not "Make short term profit". This attitude will ensure longterm profit.
- **Create innovation "ambassadors"** – The co-creative and participatory process in itself constitutes the right moments to generate innovation market ambassadors. The external stakeholders that participate in the organization innovation challenge will be the firsts to talk about it with friends, sharing the experience and advising the new product, service, business model, brand, etc..
- **Building reputation process** – In itself the innovation in co-creation process will build or external image, specially when the stakeholders recruited are representative of the community "living forces" being opinion makers, trend setters and community managers.
- **Risk taking** – The open innovation approach must be prepared to win-a-few, lose-a-few by adopting a risk-taking attitude, but supported by the right organizational culture and leadership the risk taking mindset pays of.

- Principles

The open innovation process may never be closed in any stage, all development should take place in an open manner, thus fostering the interests from participants, encouraging active contributions and avoiding "my idea" syndromes and unfruitful competition on the development side:

- **Minimize corporate secrets**. The more the users and partner organizations know about the situation at hand, the better collaboration and results the innovation effort will have.
- **Open progress** – No phases of the development takes place behind closed doors.
- **Transparency** – Stakeholders should be kept informed of what is going on in the on-going innovation process. This creates commitment.
- **Openness** – Openness regarding expected outcomes, methodologies, stakeholder participation, etc.
- **Dare to let your customers interact** – When your customers interact, some of them will say some mean stuff about you. But, with the right tools, this dialogue can be used to create creative solutions to the discussed issues.
- **"I want others to succeed"**– Cooperate, realize that in helping other organizations succeed, you will build long term trusts that you will profit greatly from in the end.
- **Brain power outside the project** –A base for the argumentation is that there is a high possibility that smarter and more innovative people exist outside the core project group.

- Development-related principles.

Open innovation, based on co-creation and design thinking, requires a contextual agile process where requirements can change and develop throughout the process, facilitated by an expert in the field that guides the organizations and helps them to acquire the needed competences:

- **Iteration** – Involvement is managed though short development cycles.
- **Incremental and sequential structure** – Breakdown ideas, to facilitate continuous development.
- **Contextual presence** – The innovation, specially the living labs stage as well as all its activities take place in the actual environment of the identified "Problem".
- **User innovation facilitator** – The process needs to be managed and supported by a development facilitator or by a team that integrates experts of the process and members of the leading promotor organization.
- **Concrete progress** – All phases of development are made concrete and understandable for all stakeholders. Make them tangible by creating concrete deliverables in the end of each phase of the process. Make it visual, sistemic and create a roadmap "where we are" for the stakeholders. Knowing exactly in what stage the process is creates a sense of accomplishment, step by step wins and the participants knows what is expected from them.
- Basic values controlling evolution.

The core values in the development organizations as well as the values among all involved stakeholders need to support issues relating to social consciouness, sustainability, holism, and creative cooperation in the projects:

- **Positive climate** – Encourage creativity through positive feedback and engagement.
- **Open partner culture** – All participating partners should have an open innovation culture.
- **Holistic perspective** – IT, business, organization and people all develop dependent on each other.
- **Focus on innovation** – Focus should be on innovative development rather than incremental problem solving. Experimentation must be allowed.
- **Create an "integrated perspective" regarding social innovation** – Ethics, environment, social responsibility, accessibility, community building, local economy development must be the background and in the mindset of all stakeholders and must be the backbone approach in all types of innovation challenges, being a new product, a new service, a new brand, etc… Not only on social innovation challenges. Innovation needs Purpose and Meaning.
- Organizational/Stakeholder structural conditions.

The organizational structures and the governing rules and regulations must be in line with the key principles of the open innovation, specially when the approach its focus on networking:

- **Management support** – Active involvement and support from management is essential to make user-centered innovation happens.
- **Legal Framework** – Providing government (e.g. Legal) frameworks ahead of time (proactively) they are needed (e.g. Before idea reaches commercialization).
- **Multi organizational innovation** – The promotor can create value with and to other organizations by matching needs and opportunities and providing the innovation challenges structures such as a collaborative platform for involved stakeholders.
- **Well-defined "boundaries"**– The process must define what user processes are/are not included in the environment.
- **Define why you are active in the innovation challenge** – For each stakeholder; know the reasons for participating. These reasons do not have to be the same for all partner organizations, but they have to be defined and aligned. Use the existing methodologies and IT supports to know all about each stakeholders, e.g: learning processes, behaviour in group dynamics, innovation and creativity profile, etc…

B- Validation of the research objectives

This research main objective was to Create a methodology: Holistic, integrated, based on design thinking, co-creation, a quali-quanti (qualitative and quantitative) mixed methods, a metric system IT enabled, which constitutes a systemic approach that helps to create, develop and promote a creative culture, collaborative philosophy and experimental context to assist organization's management in innovation orientation and focus. It is our conclusion based on the sequence of evidences documented in each of the cases, that we achieved the purpose successfully.

Many of the objectives have been achieved through the proper sequence of cases, experimenting, creating new solutions or proposed evolution of the model, techniques and tools. Thereby validating only happened in subsequent cases to cases where the doubts or needs aroused.

The next table 41 shows in detail the validation of these dissertation objectives.

Table 41 - Objectives validation table

	OBJECTIVES	ACHIEVED
General	To Create a methodology: Holistic, integrated, based on design thinking, co-creation, a quali-quanti (qualitative and quantitative) mixed methods, a metric system IT enabled, which constitutes a systemic approach that helps to create, develop and promote a creative culture, collaborative philosophy and experimental context to assist organization's management in innovation orientation and focus.	Fully achieved objective. We build a holistic model, supported by IT platform and metric system. Today we build a fully validate innovation model based on applied action research that is able to be implement efectivly in very different innovation challenges and professional organizations.
Detailed	to create a methodology that helps to "simplify the complexity" that is today the innovating effort, with the development of the full phases of an innovation system methodology: Innovation generation, innovation management and innovation dissemination, but focused/ centered on the "person", the appreciation of the creative value and in the innovation competence of individuals, teams and communities	Fully achieved objective. The IDEAS(R)EVOLUTION model it is complemented with operational models, developed during this research, regarding the 3 phase of innovation generation, management and dissemination. The built tools allow a good individual, team and community dynamic.
Specific 1	To reinforce the principle objective of the IDEAS(R)EVOLUTION procedure, consequently to create an inventive society, insights and advancement in the regions, companies and individuals.	Fully achieved objective. IDEAS(R)EVOLUTION is a proofed concept to implement for territorial innovation from local to regional dimension. Also regarding companies. Due to the active participation on our processes and workshops, we also change individual mindset and attitude towards creativity and innovation
Specific 2	To strengthen the strategic role of Design thinking and practice in business organizations, translated into the ability to think and create systems (system thinking), working in collaboration and multidisciplinary approach, supported by creativity tools and dynamic group techniques.	Fully achieved objective. The cases we developed for the purpose of this research increasly shown the organization perception and acceptance of the design thinking approach, from the multidisciplinary teams to the creative tools and techniques
Specific 3	Consumers today are predisposed to participate in the innovation processes of companies, if the approach and motivation of co-creation is designed with the right approach, being authenticity and transparency of the process, the truth of co-creating the statements made by the organization/company, mainly the compromise of the organization to validate and implement the stakeholders' ideas arise from the co-creation and design thinking process.	Fully achieved objective. It was rewarding to observe and measure the motivation of costumers, citizens and consumers to participate in the different projects. The stage of Involvement - preparation shown to be crucial regarding the full authenticity and transparency of processes that consumers need to fully motivated to participate in all IDEAS(R)EVOLUTION model without money rewards.
Specific 4	Contribute to the creation of a methodological approach to the set of Design Thinking for Innovation metric system, thus validating the methodology itself, its processes and integration with the business management knowledge area.	Fully achieved objective. The IDEAS(R)EVOLUTION metric system is still a work in progress area but the achieved results give us full control and monitoring power over the process and the innovation cycle. It is also distinctive comparing with other design thinking for innovation approachs and models. We are not afraid to measure creativity and our own process quality and perceived value.

Source: The author

C- Validation of the research questions

Our research question statement was: It is possible, given today's complexity, innovation processes and management paradigm, to "deeper" develop a design thinking based model in a more systemic, more holistic and multidimensional level? Thus becoming a facilitator and implementation system that support and enables the manager's quest for change and innovation driven companies? Can this new model be centered in an active participatory and co-creation orientation with internal and external stakeholders? Would such model generate a high involvement and engagement with consumers, citizens and organizations?

The research affirms that IDEAS(R)EVOLUTION gives a concrete positive answer to this question. It's a deeper, more systematic and holistic approach to design thinking for innovation models. Also IDEAS(R)EVOLUTION it is fully centered in participatory and co-creation paradigm and generates engagement with consumers.

In the following table 42, we cross the initial and working research questions with the five performed case studies. This table demonstrates where the each hypothesis was fully or partial validated.

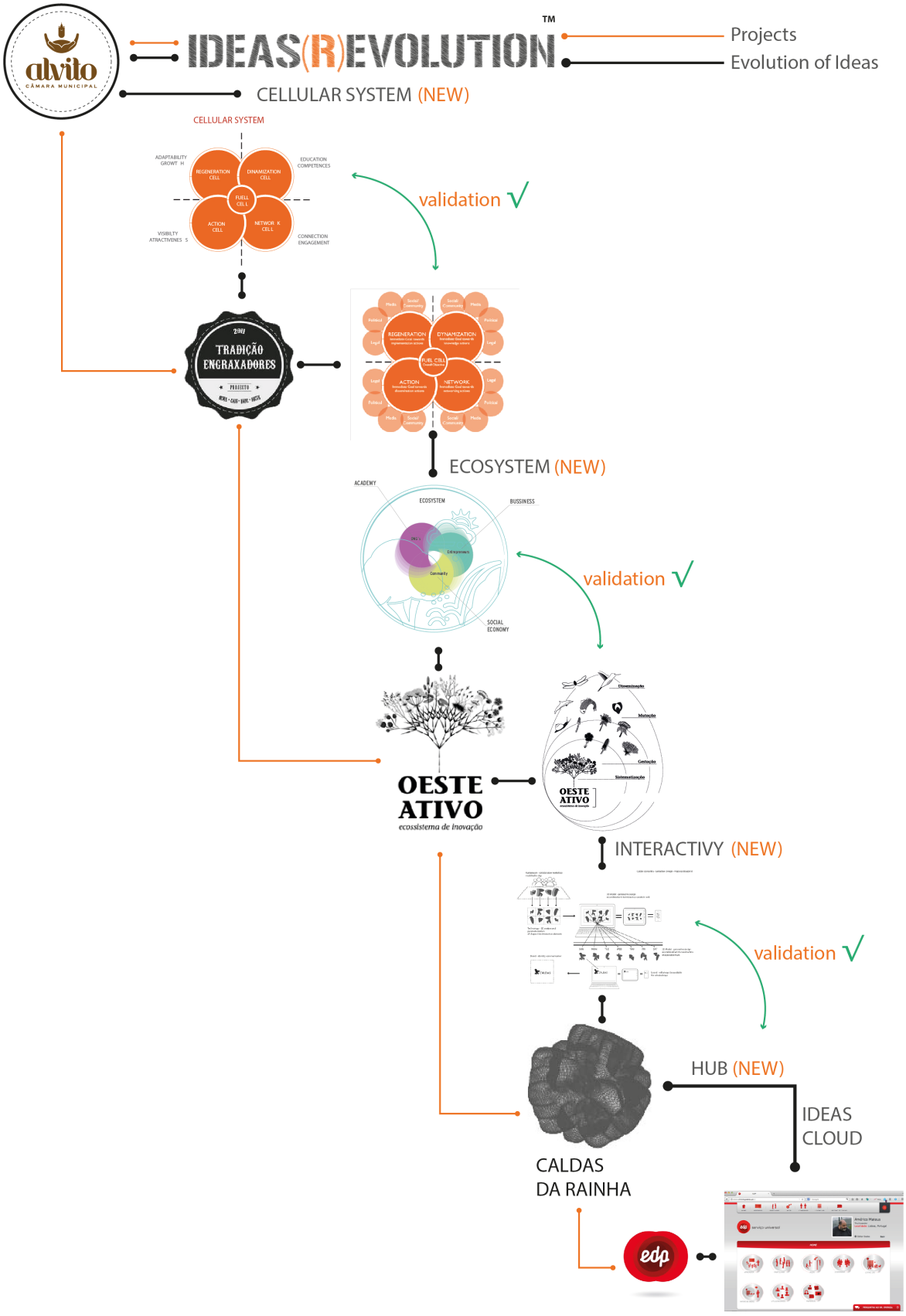
Table 42 - Crossing research questions and Cases Validation Table

	Research Questions	CASE ALVITO	CASE ENGRAXADORES	CASE OESTE ATIVO	CASE CALDAS DA RAINHA	CASE EDP
IRQ1	Is it possible to improve design thinking for innovation approach by introducing new knowledge areas, more scientific based methods, a metrics system and especially by using the new technologies to enable the full process and implementation?	The Alvito case validate the introduction of new knowledge areas, branding, strategy and marketing for territorial innovation		The Oeste activo case validate the introduction of new knowledge areas mainly regarding entrepreneurship and business development	The Caldas da Rainha case, provide validation for the integration new technologies as a enabler of the innovation process and also regaridng the innovation outcome.	Fully validated by the User Centered Innovation Program experiment - Phase 1 2 and 3
IRQ2	Is it possible to create a continuous innovative flow within all organizations, combining co-creation, creativity and design? And if so is it more effective if it promotes a creative culture inside the organizations where chaos, collaboration, multidisciplinary is nourished by all levels of management?					Fully validated by the User Centered Innovation Program experiment - Phase 1 2 and 3
IRQ3	Can Design practice and thinking when associated with creative intelligence techniques become a better systematic approach to Innovation? Being an innovation system itself, does it enable a more effective knowledge transfer for the organization?			Fully validated by the Oeste Ativo Ecosystem for Innovation programe	Fully validated by the Caldas da Rainha brand and territorial innovation process and outcome	Fully validated by the User Centered Innovation Program experiment - Phase 1 2 and 3
IRQ4	Can a design thinking, co-creation and creativity based innovation system, when implemented, build an internal network of "creativity and innovation energizers" within the organization as well as, via the co-creation process build a deeper external committed community around the brand?		Fully validated by the Engraxadores profession revival programe	Fully validated by the Oeste Ativo Ecosystem for Innovation programe	Fully validated by the Caldas da Rainha brand and territorial innovation process and outcome	Fully validated by the User Centered Innovation Program experiment - Phase 1 2 and 3
IRQ5	Can companies and organizations today survive without the ability to listen, co-create and engage with their consumers, in particular when its management focus is the innovation effort?					Fully validated by the User Centered Innovation Program
IRQ6	Does this innovation approach build engagement between internal and external stakeholders involved in this process? Does it have an impact on the ideas and innovations generated?	Fully validated by the Alvito Territorial innovation case	Fully validated by the Engraxadores profession revival programe	Fully validated by the Oeste Ativo Ecosystem for Innovation programe	Fully validated by the Caldas da Rainha brand and territorial innovation process and outcome	Fully validated by the User Centered Innovation Program experiment - Phase 1 2 and 3
IRQ7	Can we simplify complexity? Mainly it is possible to simplify the innovation systems and approach inside organizations? It can be done by unleashing the organizational potential, understand the internal and external complexity and respond to it by simply adding value?			Fully validated by the Oeste Ativo Ecosystem for Innovation programe	Fully validated by the Caldas da Rainha brand and territorial innovation process and outcome	Fully validated by the User Centered Innovation Program experiment - Phase 1 2 and 3
IRQ8	Can internet based collaborative and co-creation driven platforms and social software empower open and design thinking based innovation? And mobile app? Can they be useful bidirectional, meaning, not only regarding the gathering of ideas and shared information, but also in the operational stages vital to of the overall process such as a real-time system for the selection, recruitment, sharing and interaction of consumers, allowing the incorporation of anthropological observation and ethnographic ideation into the research, essay and development process?				Fully validated by the Caldas da Rainha brand and territorial innovation process and outcome	Fully validated by the User Centered Innovation Program experiment - Phase 1 2 and 3
WRQ 1	The innovation in co-creation systems needs to develop an operational model designed from the participative perspective: meaning that all Internal and external stakeholders have a role to play during innovation implementation and management?		Fully validated by the Engraxadores profession revival programe	Fully validated by the Oeste Ativo Ecosystem for Innovation programe		
WRQ 2	The social innovation based on design thinking models need to incorporate more cooperative frameworks linking social economy, entreprenuership, education and business fields - Ecosystem?			Fully validated by the Oeste Ativo Ecosystem for Innovation programe		
WRQ 3	IT Platforms and Social softwares, when integrated in the full holistic innovation system can become enablers of the continuous development of the innovation ecosystem?				Fully validated by the Caldas da Rainha brand and territorial innovation process and outcome	Fully validated by the User Centered Innovation Program experiment - Phase 1 2 and 3
WRQ 4	Given todays use of ICT and mobile networks, real time interactivity and 24/7 dialogue can be used to create generative brands based on continuous bilateral interaction ?					Fully validated by the User Centered Innovation Program experiment - Phase 1 2 and 3
WRQ 5	Is it possible to gather the citizens and the civil society be a part of the innovation processes of the organizations?					Fully validated by the User Centered Innovation Program experiment - Phase 3

Source: The author

Figure 68 presents the co-relations between the case studies regarding the main outcomes and the validation process. For example the working research question 1 (WRQ1) generated thinking about the Alvito case study findings, was tested and validated in the following case study of "Engraxadores".

Figure 68- co-relations between the pre-experimental case studies - WRH validation



Source: The author

Main theoretical improvements contribution

The IDEAS(R)EVOLUTION – Holistic and multidimensional integrated innovation methodology, produced relevant theoretical contributions to the development of design thinking based innovation existing known methods and processes:

- From internal multidisciplinary stakeholders and outsourced experts team model to an internal and external stakeholders co-creation model – IDEAS(R)EVOLUTION initial concept of developing all innovation process in-creation proved to be a valid contribution to this innovation field. From the management perspective it means to make cleaver business decisions, in financial terms – in medium and long run it costs less to "learn the process" and how to master this co-creative paradigm with the companies structure then to outsourcing experts consultancy each time and innovation challenge emerge. Also mastering an continuous interaction and user centered innovation flow and dialogue with external clients and partners brings value to the organization.
- From a product, service, business model or social Innovation delivery goal to a knowledge transfer and Do-It-Yourself, changing culture goal and objective – This new goal and research focus that IDEAS(R)EVOLUTION approach brought to this type of innovation field its relevant in the researcher "eyes". It means that our methodology teaches how to fish instead of catch a big fish for the organizations. Not only makes good business sense, as well as, its oriented to change and implement the organization culture and innovation system trough the employees involvement and learning by doing method. Also this issue helps the organization to "fine tune" the implementation parameters thinking on the existing culture, the company DNA. This adaptability is the main reason why we created an initial stage to the design thinking for innovation process – INVOLVEMENT. This important stage focused on diagnostic and individual dimensional and company dimension is the enabler of the parameterization feature of IDEAS(R)EVOLUTION methodology. Also the new canvas we developed (see figure on chapter 9) with self-explanation tutorials is crucial to the success of the DIY factor.
- To scope the design thinking based innovation applications to brand building, territorial innovation and entrepreneurial ecosystems – IDEAS(R)EVOLUTION field research tested and validate the application of Design thinking based innovation in different fields, challenges and focus. Our improved methodology proved that it is possible to generate impressive results when applied to (a) branding: the innovation in co-creation helped us to develop deeper brand insights because of the internal and external philosophy. These two "universes" are really representative of the "believes system", the brand DNA, the

value perceived and the creative ideas to communicate the brand; (b) Territorial innovation: with the right adjustments, the new tools and operational models that we created and tested in several territorial brand and innovation challenges/projects, we contribute to set a new area where this innovation is really fit for. An territory it is the maximum expression of our human "sense of belonging", it's where we have more a bigger commitment feeling and where we all wish to help to develop for a better future. User-centered and participatory open innovation, thinking on our holistic and integrated concepts and operational models constitutes your bigger and more promising contribute to future implementation; (c) Entrepreneurial ecosystem: Unlike the territorial innovation, the entrepreneurial space is completed intangible. In these projects we deal with mindset, attitude, willpower. IDEAS(R)EVOLUTION specially trough the OESTE ATIVO case study developed specific operational models and tools focused and these drivers like the activism innovation management model that proved to be fit with this type of challenges. Also in this topic is relevant the self-management guidelines, because if the think on ecosystem concept, the main consensus is generate trough collaboration, cooperation and exchange between the "species". Our Oeste Ativo case study it's a good source of knowledge to be disseminated and improved by other researcher and entrepreneurship development focused project.

- From inspiration – ideation – implementation processes to the incorporation of internal and external focused new complementary stages: (a) internal: Involvement; (b) external: Integration and Interaction – We improved the 3 stages traditional design thinking for innovation processes. Our Holistic, multidimensional and integrated innovation approach, where we aim to impact organizational culture change, promote better work environment, better entrepreneurial employees competences, more collaborators commitment and motivation, more external validation during the full process implementation and to promote continuous dialogue and interactions with and between all stakeholders, developed, tested and validated 3 more stages: (a) Involvement – Focused in the internal dimension and objectives; (b) Integration – Focused on external validation, meaning extending the process out of the stakeholders group to validate observations, trends, insights, ideas, plans and also to obtain feedback or new inputs; Interaction – focused on the use of the multichannel platforms, models and tools to start and maintain a bilateral dialogue with the stakeholders and the target consumers.
- From the new product development, new service experience, new business model creation or social innovation focused innovation challenges Holistic concept –

IDEAS(R)EVOLUTION developed and validated a new approach to innovation introducing a more holistic philosophy, meaning that, throughout the process in itself a large quantity of information is generated, being insights, points of view, observations or simple ideas. Due to the diverge-converge-select technique a significant part of the information is left aside because the groups normally are looking for solutions to a specific problem or challenge. Our holistic model, final systematization tools and IT platform allows the company to: (a) record and manage the generated information being the final deliverables canvas existing in each one of the 11 phases of our process (see figure on chapter 5) or the data gathering area of IDEASCLOUD platform or C4S app; (b) when systematizing the innovation final matrix and planning strategically the implementation actions go back to the collected information and define the impacts of the final ideas in different areas of company that are important to the success of the innovation that is going to the market, meaning, ideas to use on the brand, internal processes, logistics, distribution, marketing, communication, etc.

- **From a pure qualitative based method to quali-quanti, mixed methods and metrics system** – This topic is the most scientific and academic contribute of our work in the researcher opinion. The quali-quanti metric system that we introduce to evolution the full process itself and the innovation outcomes in several stages of the process proved to be very important for: (a) the control of the process quality, giving us important information to adapt, change, improve the workshops and the relationship's; (b) at the define Kpi's by giving us crucial information and data to show to the promoters and the stakeholders and (c) by helping the stakeholders and the promoters to have support to take their decisions regarding ideas selection, final strategies, etc.
- From a physical workshop based innovation scenario to a innovation "HUB" multidimensional innovation scenario: "in balance" usage of physical and virtual means, tools, participation channels and access - IDEAS(R)EVOLUTION innovation HUB, supported by the overall blueprint of sequential workshops and IDEASCLOUD IT Platform guarantees the continuous flow of innovation that enables the DIY and innovation culture change implementation that we promise to the organizations.
- From "open doors" most of the times "all on board" stakeholders recruitment strategies to scientific based recruitment model, using statistical instruments and crossing learning competences with creative profile and group dynamics behavior – The full experience we had with the EDP case study helped us to improve the recruitment process. The initial stage of involvement where we know better the stakeholders and the companies profile

it is vital to the all process. The chosen models and tools to operationalize the recruitment revealed themselves very useful – Learning about the ruler, the Belbin test and the Diagnostic tool. The protocol of operations, define very well where, when and how to make the recruitment procedures.

- From experimentation and market tests within the 3 traditional stages to embedded Living Labs concept in the IDEAS(R)EVOLUTION 6 stages process – We looked at the Living Labs methodology as complementary to ours. By incorporating them in our one process, we brought the experimentation and usability testing existent in the traditional design thinking for innovation processes to a complete new level. For the company doing it integrated with the innovation process means more control and concentration, for the process itself means that we reach deeper levels of information and insights, as for examples the possibility to obtains vital information for the innovation marketing strategy, such as price perception, communication drivers, etc.
- IDEAS(R)EVOLUTION also contributed to design thinking based innovation with the proposal and validation of new operational tools – Our unique brainstorming tools 3D brainstorm in itself is a valid contribution for the innovation community. This new approach proved to be very useful to improve the normal brainstorming dynamics especially for those stakeholders that are not experienced to this processes. The 3D tools its tangible, sensorial and playfulness, those elements are crucial to achieve good results in the ideation stage.

Future research

As introduce in Chapter 5 and 6, the current stage of evolution of the methodology IDEAS(R)EVOLUTION involved setting of a spin-off that had its origins in academic research links that have been created for the development of this doctoral thesis, mainly with the Belgium researcher Professor Pieter Sprangers.

We wanted to be consistent with the entrepreneurial spirit that we seek to instill in the organizations that over the years we have been cooperating, so this entrepreneurial based approach, led us to establish in September 2014, the brand Innokinetics - Human self-sustainable innovation cultures.

This phase is the final step for the introduction of IDEAS(R)EVOLUTION methodology in the international market, focused on Europe. Your methodology is the body of knowledge of the new spin-off market proposal and contents.

The Innokinetics Spin-off is already collaborating with two Belgian companies with size and scale:

- ENECO – Green Energy provider that operates on Belgium, Netherland and French Markets,
- Van Roey – Big building corporation group in Belgium.

In this two projects, our founders' principles linked to: (a) the cultural change in the organizations focused in innovation and entrepreneurship and (b) the aspect of community, ie, social responsibility of business where demand for innovation should be based on a strong community development purpose, are the main focus areas for our work for those companies.

Regarding to the most scientific and theoretical issues for the researcher there are three main areas requiring further a greater research development and also more real life context testing of the new operating models created:

- Recruitment – Being a crucial contribute for the success of this type of innovation methodologies, it is our purpose to initiate further experimental test only focusing on this issue. The future research and development of this model most generate better protocol standards and IT supported “smart or intelligence” automatisms. Today this part of the methodology implementation and the Do It Yourself concept regarding knowledge transfer promise, it is still to absorbent of Human hours and also difficult to create standards from one project to another.
- The Integrated Innovation concept – We are on the development stage of a more operational model. This topic it is sensitive to most companies specially because it's always considerer and referred by the stakeholders, mainly the external one’s, in the workshops. Today companies are still changing the paradigm from, CSR - Corporate Social Responsibility to CSI – Corporate Social Innovation. There are already good case studies from Nordic Countries companies that prove that vision represents also profitable approach to Companies. This companies join efforts on facing world social problems as innovation igniters, such as water resources management, sustainable energies, greener technologies, etc, with great success. But we think that is necessary to add a new C to the equation CSI+C. It means Corporate Social Innovation + citizenship/communityship. In their innovation challenges and initial problems or frictions, companies must address also the issues of well being, better life quality and community development. Technology most be the enabler but People and our common space (community) must be on the center of all innovation challenges. At ENECO project we are addressing this topic, our aim is to shift from Green Energy provider to life solutions provider. That is a important future research based experimental project for our on-going IDEAS(R)EVOLUTION methodology development.

- The quali-quanti metric system – This main contribution from IDEAS(R)EVOLUTION methodology needs to be further developed. We are aware that our metric system it is very important regarding the quality monitorization and the continuous feedback for improvement of: (a)each project and (b) for the overall methodology itself. The challenge we face now it is to further develop it in the IT based online platform IDEASCLOUD and the mobile C4S – citizens for science app. The main research focus should be not only the technological aspects but more important the type of human based interactions and routines to by created in order to motivate the users to give continuously inputs, feedback, narratives and to share their experiences and stories.

The future of IDEAS(R)EVOLUTION is guaranteed due to two factors: (a) IDEAS(R)EVOLUTION is a on-going research project from UNIDCOM / IADE. Our project already created an international research network. We have research charring protocols with seven different research centers, from Japan, Australia, Brazil, USA and Europe. After the publication of this Doctoral thesis we are going to share our full case studies results with this network and start to implement via this academic research centers the methodology in several experimental research project in different countries. This type of future research development will give us a multicultural data analysis to enrich the cultural drivers of the overall methodology; (b) as a research group in the IADE – creative university research unit – UNIDCOM, we are developing a international application for European Union funds H2020, the goal is to use the EDP case experience in a European scale within the Smart Cities frame.

ANNEX

Annex 1 - Summary table of Benchmark analysis of existing tools of design thinking and crossing with the steps of the methodology IDEAS(R)EVOLUTION

	Involvement			Inspiration		Ideation		Integration		Implementation	Interaction
Methods	Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
A/B Testing								X		X	
AEIOU			X	X							
Affinity Diagramming	X	X	X	X	X	X	X	X	X	X	X
Automated Remote Research				X							
Behavioral Mapping			X	X							
Bodystorming		X				X					
Brainstorm Graphic Organizers	X	X	X	X	X	X	X	X	X	X	X
Business Origami							X		X		
Case Studies						X	X	X	X		
Cognitive Mapping				X	X			X	X		
Cognitive Walkthrough			X	X							
Collage	X	X	X	X	X	X	X	X	X	X	X
Competitive Testing				X						X	X
Content Analysis	X	X	X	X	X	X	X	X	X	X	X
Contextual Inquiry			X	X	X						
Creative Toolkits	X	X	X	X	X	X	X			X	
Critical Incident Technique										X	
Crowdsourcing											
Cultural Probes			X	X							
Customer Experience Audit	X		X						X	X	
Design Charette						X	X				
Design Ethnography			X	X	X						

Design Workshops	X	X	X	X	X	X	X	X	X	X	X
Diary Studies	X		X								
Directed Storytelling	X		X					X	X	X	X
Evaluative Research								X		X	
Experience Sampling Method			X								
Experiments	X	X	X	X	X	X	X	X	X	X	X
Generative Research		X				X					
Graffiti Walls	X	X	X	X	X	X	X	X	X	X	X
Image Boards	X	X	X	X	X	X	X	X	X	X	X
Interviews	X	X	X	X				X		X	X
KJ Technique	X	X	X	X	X	X	X	X	X	X	X
Key Performance Indicators	X	X	X	X	X	X	X	X	X	X	X
Literature Reviews	X	X	X	X	X	X	X	X	X	X	X
Mental Model Diagrams	X	X	X	X	X	X	X	X	X	X	X
Mind Mapping	X	X	X	X	X	X	X	X	X	X	X
Observation			X								
Participant Observation			X								
Participatory Action Research PAR	X	X	X	X	X	X	X	X	X	X	X
Participatory Design	X	X	X	X	X	X	X	X	X	X	X
Personas				X	X			X			
Photo Studies	X		X								
Picture Cards				X		X					
Prototyping							X			X	
Questionnaires	X	X	X	X	X	X	X	X	X	X	X
Roleplaying		X				X					
Scenario Description Swimlanes									X		

Scenarios									X		
Secondary Research	X	X	X	X	X	X	X	X	X	X	X
Shadowing	X		X								
Speed Dating				X		X					
Stakeholder Maps		X									
Storyboards						X	X		X		
Thematic Networks	X	X	X	X	X	X	X	X	X	X	X
Thinkaloud Protocol	X	X	X	X	X	X	X	X	X	X	X
Usability Report					X				X		
User Journey Maps	X		X								
Value Opportunity Analysis								X	X		
Weighted Matrix							X	X		X	
Word Clouds	X	X	X	X	X	X	X	X	X	X	X

Table 43 - Design Thinking Techniques Overview

Annex 2 - Detailed analysis of design thinking tools by step methodology IDEAS(R)EVOLUTION

Transversal Phase Techniques

This Design Thinking techniques area applied to transversally to all IDEAS(R)EVOLUTION methodology. They define and build the core of the methodology and their application.

Affinity diagramming - according with (Holtzblatt & Beyer, 1998; Kawakita, 1982; Kuniavsky, 2003) affinity diagramming is a method employed in order to cluster information during research. It helps to compile tacit knowledge that emerges from data collection. Affinity Diagram is performed groups that denote research themes. During contextual inquiry, some interviews must be conducted and after that some observations must be recorded. The design team can later cluster related notes (sharing the same issue, problem or intent) in a movable way so that they can be relocated easily. This sequence results in the emergence of a story about the user, his or her problems and tasks. Affinity diagramming is applied to all phases and helps to cluster information from the workshops.

Automated Remote Research - stands for the practice of employing web-based research tools to gather statistically relevant data and can be triangulated with behavioral information. There are a large number of tools available for this purpose (both qualitative and quantitative) so the design team should carefully spend some time in planning this activity (Bolt & Tulathimutte, 2010; Tullis & Albert, 2008; Tullis, Tedesco & Albert, 2010). Automated Remote Research techniques are used mainly in ideascloud platform to strive collaboration, increate stakeholders involvement and transfer knowledge among the community, group or stakeholders' group.

Content Analysis - is employed for systematically analyze lengthy qualitative record, such as interview transcripts. Depending on the type of the analysis to be conducted, it can be done using two approaches: inductive or deductive. The codes are derived from reading samples of the original material and they are used in subsequent analysis, while the later a preset of codes is defined through a theoretical framework. Content analysis results in quantitative reports and support the identification of themes and patterns emerged from the original data. This technique can also report on the form of the content, relationships between images and text size or position (Robson, 2002; QSR International, 2015; Sommer & Sommer, 2002). This technique is transversally used among the methodology as a way of interpreting the produced content throughout the workshops, video recording transcriptions and other sorts of collected information.

Experiments - measure the effect that an action has on a situation by demonstrating a causal relationship or determining conclusively that one thing is the result of another. They determine cause and effect by meeting three conditions: the presence of two observable and measurable actions or events; the cause event occurring before effect; and elimination of all other possible causes. (Sommer & Sommer, 2002; Larson & Loschky, 2002). Within the methodology this technique transversally applied and define the overall application.

Graffiti Walls - provide an open canvas on which participants can freely offer their written or visual comments about an environment or system, directly in the context of use. This technique encourages participation through natural means of facilitating casual, anonymous remarks about an environmental space, system, or facility. Large-format paper is adhered to a wall or other surface, with markers tied to a string or otherwise made readily available for open-ended comments to be posted. The paper may be left blank, or a guiding question may be positioned to direct comments on a particular theme. The method can be used almost anywhere, but it is particularly useful in environments or for situations in which it may be challenging to collect information through traditional methods such as interview or observation. This technique is used transversally as wall size format tools and define the base of IDEAS(R)EVOLUTION application, often applied in unexpected places in order to strive creative thinking.

Image Boards – is a collage of collected pictures, illustrations, or brand imagery can be used to visually communicate an essential description of targeted aesthetics, style, audience, context, or other aspects of design intent. Image boards, or mood boards are used to build inspiration and serving to inspire (Hughes, 2008). Within the methodology this technique is used to retrieve information throughout the methodology.

KJ Technique - help teams working through a problem space and prioritize what should be focused on first. The KJ Technique is a consensus-building exercise that helps teams organize a complicated range of ideas and information. The KJ Technique is an effective way to externalize information and then organize and prioritize the data in a way that builds group consensus (Kawakita, 1982; Spool, 2004). Within the methodology this technique is used in each work tool and working sequence in order to create consensus for a subsequent phase.

Design Workshops - stand for sessions composed by multidisciplinary teams in order to organize the execution of generative and evaluative methods. It must be previously planned for the logistics,

agenda, data recording and roles to be adopted during these sessions. This method has been strongly associated with design thinking where participants are stimulated to co-create a particular solution while applying several design methods. Design workshops technique is the base for the methodology application. Is applied in all the phases for co-creation in-group dynamics.

Participatory Action Research (PAR) - is a method of research inquiry to describe, understand, and explain, in its explicit mission to actually change the community, parties, or policies under study. PAR is also appropriate where involving practitioners directly in social research serves the purpose of bringing skills and experience to facilitate change, advocating for the creation of practitioner researchers in areas such as nursing and social work. The process of PAR is dynamic and cyclical in its sequence of planning, taking action, observing, evaluating (including self- evaluation), and critical reflection prior to planning the next cycle. Robson (2002) outlines common stages of PAR as follows: Define the inquiry; Describe the situation; Collect evaluative data and analyze it; Review the data and look for contradictions; Tackle a contradiction by introducing change; Monitor the change; Analyze evaluative data about the change; Review the change and decide what to do next (Lewin, 1946; Robson, 2002; McNiff, 2002). Within the methodology this technique is used as an empirical method in the methodology.

Think-aloud Protocol - is a method to verbalize what participants are doing and thinking as they complete a task. Helps to reveal aspects of an interface that delight, confuse, and asking people to articulate what they are thinking, doing, or feeling as they complete a set of tasks that align with their realistic day-to-day goals. Also identifies the aspects of a digital or physical product that delight, confuse, and frustrate people so that they can be corrected or improved. There are two common experimental procedures for the think-aloud protocol: Concurrent Think-aloud, the participant works through tasks while articulating what he or she is doing, thinking, and feeling where the focus of the test should be on what is happening, as opposed to why; Retrospective Think-aloud begins by asking participants to complete a task in silence. (Albert & Herbert, 1972; Ericsson & Herbert, 1993; Zhiwei, Lee, Cuddihy & Ramey, 2006). Within the methodology the think-aloud method is used to retrieve information to all the phases as they happen.

Brainstorm Graphic Organization - Is used to help creative teams to unveil new connections between components within a problem space in order to come up with unconventional alternatives against old patterns for a specific domain. They are graphically organized and examples are Brainstorming Webs (parting from / converging to a central concept through related information); Tree Diagrams (bottom-up or top down hierarchical communication between central and supporting ideas); Flow Diagrams (documents

sequential events, representing actions or processes in a system) (Osborn, 1993; Hyerle, 1996; Ausubel et al., 1978; Clarke, 1990; Sinatra, 1990). This visualization and system thinking are used in our methodology in order retrieve information from the stakeholders and lead ideation sessions.

Collage - is a method that facilitates the process of self-expression from research participants through the usage of a set of tools like cards, paper sheets, images, words and shapes. Employing these artifacts, participants can visually tell a story about present, past or future contexts of their lives when they present each result for the rest of the group. Moderators must record these presentations so they can later conduct a qualitative analysis where patterns or themes emerge within or among collages (Sanders & Colin, 2001; Stappers et al., 2003). This is a transversal technique and is used for visually represent, promote personal and group creativity as well as for moodboard creation.

Mind Mapping - is a visual thinking tool that can help generate ideas and develop concepts when the relationships among many pieces of related information are unclear. It provides a nonlinear means of externalizing the information in our heads so that we can consolidate, interpret, communicate, store, and retrieve information. Because of its visual, diagrammatic nature, it is a powerful mnemonic device, and can be used to promote understanding and enhance recall of a problem space (Hyerle, 1996). Within the methodology this technique is used to explore and systematize ideas.

Participatory Design - is a human-centered approach advocating active user and stakeholder engagement throughout all phases of the research and design process, including co-design activities. Participatory design respects the creative insight of participants to inspire and help guide the design process, and to respond to design outcomes. However, participant input is paired with design expertise, supporting the creative authority of designers to translate collaborations into design criteria, services, and artifacts. (Kuhn & Winograd, 1996; Ehn, 1992; Sanders, Brandt and Binder, 2010; Baskinger & Hanington, 2008; Baskinger, 2007) Within the methodology this technique is the main principle of IDEAS(R)EVOLUTION methodology.

Word Clouds - are a method of information visualization and organization text-based into interesting spatial arrangements. The most frequently used words or word pairs in just about any text-based source document. Words are assigned different font sizes based on word frequency, the bigger the word, the more frequently it occurs in the source document. Is a visual summary of the textual data that serves a function and provides the reader with enough information to form a general impression of what the content is about. Word clouds can serve as helpful communicative artifacts for design teams, as

visual representations of research data to clarify and highlight the content (Jonathan, 2010; Rivadeneira, Gruen, Muller & Millen, 2007). Within the methodology word clouds are used to analyze information from contents as a way to visualize it to the project promoter.

Thematic Networks - are step-by-step processes that identify, organize, and connect the most common themes in rich, qualitative data. Thematic network analysis analyzes textual data using a formulaic, step-by-step methodology to summarize the themes by constituting a piece of text and organizes the information into a weblike illustration. Thematic networks have three classes of themes: Basic Themes segments of text derived from the textual data and they represent the most obvious concepts that recur within a text. Because basic themes often cannot communicate anything meaningful and they need to be considered within the context of other basic themes that combined begin to illuminate one another, basic themes from organizing themes; Organizing Themes are a middle-order theme, and they serve to organize basic themes into clusters of similar issues. As an organizing theme takes a group of basic themes under its umbrella connecting to other and organizing themes can form a higher order premise. Global Themes serve as a summary and they articulate the deeper meaning and complexity of the data. The global theme can be seen as the heart of the thematic network. (Toulmin, 1958; Attride-Stirling, 2001). Within the methodology this tool is a way of organize and present information about the overall project.

Key Performance Indicators - according with Ronald (1961) and Peterson (2006) Key Performance Indicators (KPIs) are measurements of how well you are doing against quantifiable, widely accepted business goals. KPIs measure where you were yesterday and where you are today, showing both in relationship to where you are trying to go in terms of some predefined business objective. In this way, KPIs provide relative measurements that provide stakeholders with data regarding how people are using—or not using—their products and services. KPIs can help you to: recognize, prioritize, and react to issues as they; meaningfully summarize and compare data and use it to your advantage; document a business case for change to senior management and foster an ongoing organizational understanding of how people are responding to your product or service. Within the methodology this technique associated with all the process and phase metrics.

Literature Reviews – are useful to collect and synthesize research on a given topic and are a familiar method of secondary research. The literature review is intended to distill information from published sources, capturing the essence of previous research or projects as they might inform the current

project (Booth, 2008). Within the methodology this technique is used to introduce new themes in each phase through the presentation of state-of-the-art review.

Mental Model Diagrams - is a rigorous framework for analysis that aligns the behaviors, beliefs, and emotions people have as they set out to accomplish a task (the top half of the diagram) against your features, product, and service offering (the bottom half of the diagram). The goal is to help teams make appropriate product development strategies that align with how people already approach problem solving in their daily lives, as opposed to building a product that neither resonates with them nor augments their existing patterns of behavior (Johnson-Laird, 1983; Young, 2008). Within the methodology this technique is used to replicate mental model in the information analysis and treatment.

Questionnaires - are survey instruments designed for collecting self-report information from people about their characteristics, thoughts, feelings, perceptions, behaviors, or attitudes, typically in written form (Robson, 2002; Agnew & Pyke, 1982; Robson, 2002). Within the methodology this technique is used as a source and way of nurturing the metric system.

Secondary Research - consists of information collected and synthesized from existing data, rather than original material sourced through primary research with participants. Secondary research is traditionally summarized in systematic reviews, or literature reviews, with full citations of sources. While these reviews are most commonly communicated in written reports, in design, secondary research can also be collected into visual summaries for shared viewing, sorting, synthesis, and the crafting of narratives. Recently, blogs have become common repositories for collecting secondary research, facilitating the organization of text, visual references, and source links, in a format convenient for sharing (Wayne, Gregory, Colomb & Williams, 2008). Within the methodology this technique is used in Labshop and back office work performed by the team.

Automated Remote Research - stands for the practice of employing web-based research tools to gather statistically relevant data, so that it can be triangulated with behavioral information. There is a large number of tools available for this purpose (both qualitative and quantitative), so the design team should carefully spend some time in planning this activity (Bolt & Tulathimutte, 2010; Tullis & Albert, 2008; Tullis, Tedesco & Albert, 2010). This is a transversal technique that is used throughout our collaboration platform.

Participant Observation - is an immersive, ethnographic method for understanding situations and behaviors through the experience of membership participation in an activity, context, culture, or subculture. It intent to actively participate in the community, forming deep connections and empathy with the people and the things that are important to them, experiencing events in the same way as the people they are studying. Systematic observation and recording are critical, documenting not only what is physically evident in the environment, but the behaviors, interactions, language, motivations, and perceptions of the participants. To this end, participant observation is generally combined with several other ethnographic methods, including interviews (Moore & Conn, 1985; Dewalt & Dewalt, 2002; Zeisel, 2006). Within the methodology this technique is a common observation technique that merges with other types of observations.

Diagnostic Phase Techniques

Creative ToolKits

Table 44 - Creative Toolkit technique utilization

Involvement	Inspiration		Ideation		Integration		Implementatio		Interaction	
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
x	x	x	x	x	x	x			x	

Source: the author

Creative toolkits stands for packages containing artifacts through which participants of co-creative sessions can express themselves. It intends to stimulate creativity by using and constructing objects with elements such as: paper interfaces, velcro modelling, collage, pencil, markers, etc., they must be selected properly according to the planned results of the session (Make tools, 2015; Lego, 2015; Sanders, William, 2001). This technique is widely used in order to stimulate stakeholders creative thinking and exploration, as well as a mean of ideation. Although been used in Diagnostic phase is also performed in Prepare, Observe, Understand, Define, Ideate, Experiment and Implement phases.

Costumer Experience Audit

Table 45 - Costumer Experience Audit technique utilization

Involvement		Inspiration		Ideation			Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
x		x						x	x	

Source: the author

This technique provides a framework to obtain real-time feedback (good or bad) from consumers regarding their experience with a particular product or service regularly over its life cycle. It works by segmenting the whole experience in before, during and after, so designers can identify variations in terms enjoyment of it. It should be used in conjunction with qualitative data that reflects people's life, so that a complete understanding can be developed of the consumers' point of interaction. This way the technique helps isolate which improvements can be done either in terms of research or in the product/service itself. (Martin & Hanington, 2012). This method is employed within IDEA's methodology to deepen the knowledge about consumer life and define precisely the communication target for the innovation.

Diary Studies

Table 46 - Diary Studies technique utilization

Involvement		Inspiration		Ideation			Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
x		x								

Source: the author

This technique helps to create a timeline of information provided by users. Users can apply it at random or at specific time of the day when they encounter a desired situation. It does not have a predefined format, it will depend on the goals of the research so it goes from textual to drawing and sketches (digital or manual tools). The result of this technique can serve as input for generative methods in order to identify specific topics to be developed or provide guidelines for a solution. Besides generation, diaries results can also serve to evaluate certain products usage over time. This technique is used for information collection from the stakeholders of a particular project. Although been used in Diagnostic phase is also performed in the Observe.

Direct Storytelling

Table 47 - Direct Storytelling technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
x		x					x	x	x	x

Source: the author

This technique provides a framework to obtain real-time consumer feedback regarding their experience with a particular product or service regularly over its life cycle. It works by segmenting the whole experience in before, during and after, so designers can identify variations in terms enjoyment of it. It should be used in conjunction with qualitative data that reflects people's life, so that a complete understanding can be developed of the consumers' point of interaction. Within the methodology this technique is used Diagnostic phase to collect narratives, stories and feedback from them ideas in each phase. Although, can also be used in Observe, Validate and Systematize phases helping the definition of the innovation communication strategy and, in Test and Dialogue phases as a technique to obtain continuous information.

Interviews

Table 48 - Interviews technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
x	x	x	x				x		x	x

Source: the author

Interviews are a fundamental research method for direct contact with participants, to collect firsthand personal accounts of experience, opinions, attitudes, and perceptions. Interviews are one of two methods of survey research, the other being questionnaires. Interviews may be structured and follow a script of questions, or relatively unstructured, allowing for flexible detours in a conversational format. However, even in unstructured interviews, the researcher typically has a guiding set of topics that he or she hopes to address in the session. Unstructured interviews have the advantage of being conversational and more comfortable for participants, but rely on the researcher to guide the session and collect the necessary information within an allotted time. Structured interviews may be perceived as formal and impersonal, but are easier to control in terms of questions and timekeeping, and are easier to analyze. Within the methodology this technique is used in semi-structured way for structuring the feedback and to

retrieve information in the initial phases as Diagnostic, Preapare, Observe and Understand as well as further ones as Validate, Test and Dialogue.

Photo Studies

Table 49 - Photo Studies technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
x		x								

Source: the author

Photo studies invite the participant to photo-document aspects of his or her life and interactions, providing the designer with visual, self-reported insights into user behaviors and priorities. Photo studies are most often used as a complementary component of other methods. Within the methodology this technique is used to obtain deep data from the consumers and their daily life mainly in Diagnostic and Observation phases.

Shadowing

Table 50 - Shadowing technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
x		x								

Source: the author

Shadowing is an observational method that involves tracking someone in his or her role to experience the situations of his or her daily life or work in parallel with him or her, collecting insights through the detailed nuance of firsthand, real-time exposure. Shadowing observations should be well documented, with photographs, detailed notes and sketches, or audio. As it is primarily intended to help the designer-researcher gain a true sense of the user's actions, decision patterns, and routines, shadowing is an exploratory research method, contributing to a baseline familiarity of the user group and possibly suggesting early design implications (Booth, Wayne, Colomb & Williams, 2008). Within the methodology this technique is used to retrieve contextual information from the users and organizational question as for example, the organizational Culture in the Diagnostic and Observation phases.

User Journey Maps

Table 51 - User Journey Maps technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
x		x								

Source: the author

A user journey map is a visualization of the experiences people have when interacting with a product or service, so that each moment can be individually evaluated and improved. Tells a story about an individual's actions, feelings, perceptions, and frame of mind, including the positive, negative, and neutral moments and as he or she interacts with a multichannel product or service over a period of time. The user journey map helps developing a shared vision about an existing user behavior within actual contexts use following, personas and scenarios documents (McInness, 2010; Browne, 2011). Within the methodology the User Journey Maps help the process of observing and registering the consumer behavior within a certain context in the Diagnostic and Observation phases.

Prepare Phase Techniques

BodyStorming

Table 52 - Bodystorming technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
	x									

Source: the author

Bodystorming is a type of brainstorming where ideation and prototyping takes a physical form, role-playing and experiential simulations. Its execution team can be comprised of designers or wider audience where they insert themselves in a context of simulation and can look for decisions, interactions and emotional feedback of the users. This enables a parallel development and test of concepts for products or services the integration of environmental features or objects is also stimulated in this technique. (Burns et al., 1994; Stanford, 2015; Oulasvirta et al., 2003; Schleicher, 2010). This method is used within the methodology in order to increase group dynamics and involve stakeholders and theirs five senses in the Prepare and Ideate phases where creativity is mostly needed.

Generative Research

Table 53 - Generative Research technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
	x				x					

Source: the author

Generative design exercises engage users in creative opportunities to express their feelings, dreams, needs, and desires, resulting in rich information for concept development. Is typically informed by exploratory research, and may even include similar methods, with a consistent emphasis on developing empathy for users. Participatory methods in generative research include co-design activities—a collaborative process between user and designer—such as creative tool kits, card sorting with images or text, collages, cognitive mapping or other diagramming exercises, drawing, and flexible modeling (Sanders, 2000; Hanington, 2008). Within the methodology this technique enables creative induction and potentiates stakeholders' creative exploration in Prepare and Ideate phases.

Role-playing

Table 54 - Role Playing technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
	x				x					

Source: the author

Role-playing consists of exercises where participants takes role of the user, assuming the routines and behaviors that he or she might experience in actual scenarios of use. It is a relatively low-cost, low-investment method; however, a certain amount of work is necessary to make the role-play credibly connected to the real lives of users (Sommer & Sommer, 2002). Within the methodology this technique is used to strive and analyze narratives from real routines and behaviors in Prepare and Ideate phases.

Stakeholder Map

Table 55 - Stakeholder Map technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
	x									

Source: the author

Stakeholder maps help to visually consolidate and communicate the key constituents of a design project for user-centered research and design development. It is critical to the key constituents are and stakeholders' maps serve to be a visual reference for planning user research activities, and guiding appropriate communication with stakeholders. Stakeholders should be identified by general roles, specific roles or by actual people (Robert, office manager; Linda, resident physician). However, stakeholder maps can take on a variety of forms, casual or formal, with a mix of text, photos, and graphics. There is no one right way so long as it serves the purposes of identifying key players and their relationships (Martin & Hanington, 2012). Within the methodology this method is used to analyze, evaluate, decide and test stakeholders' organization for workgroups in the Prepare phase.

Observe Phase Techniques

AEIOU

Table 56 - AEIOU technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
		x	x							

Source: the author

The method stands for a framework used for categorizing data as it is collect during observations and it uses the taxonomy of: **Activities, Environments, Interactions, Objects, and Users**. Activities represent a sequence of actions towards a specific goal that people takes. Environments informs about the private or shared space where people take their action. Interactions represent internal transactions within activities between people or something else. Objects are components of the environment and sometimes are put into use, even if that happens in an unintended way. Users are the observed subjects, which act through their behaviors, values, roles and needs (Robinson, 2015; Wasson, 2000). This method

serves as a referencing structure during Observation and for information analysis during Understand phase.

Behavior Mapping

Table 57 - Behaviour Mapping technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
		x	x							

Source: the author

Documentation of human behavior - observable characteristics, movements and activities - in a specific location by means of annotated maps, video or time-lapse. This method can be place or individual-centered, the main difference is the focus of the study – an architectural plan or a person across time. They can be mixed and complemented with interviews, as the motives for the behaviors remain unknown to the observer if behavioral mapping is used solely. (Sommer & Sommer, 2002; Larson, Bradlow & Fader, 2005). Within the methodology this method is employed to map collected information during Observation and Understand phases.

Cognitive Walkthrough

Table 58 - Cognitive Walkthrough technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
		x	x							

Source: the author

This technique is used to evaluate the ease of usage of a system when little to no preparation will be previously given for the user. A set of tasks must be selected and described from user's perspective and then the method systematically identifies each step in terms of goal convergence/divergence for which the system is intended. It is done asking the following questions for each step:

- Will users want to produce whatever effect the action has?
- Will users see the control (button, menu, label, etc.) for the action?
- Once users find the control, will they recognize that it will produce the effect that they want?

- After the action is taken, will users understand the feedback they get, so they can confidently continue on to the next action?

The objective is to uncover or optimize the sequence in order to create the fewest barriers for the user (Polson et al., 1992; Wharton et al., 1994; Lewis & Reiman, 1993). For the methodology it stands as a way to develop ethnographic observation for a holistic problem perception from user's perspective in Observe and Understand phases

Contextual Inquiry

Table 59 - Contextual Inquiry technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
		x	x	x						

Source: the author

Contextual inquiry is used to make sense of information flow, tasks performed, artifacts employed, cultural influence and the environment of the user. It must be done in the beginning of the design process when the designer inserts itself to observe and uncover implicit structures on the daily lives of the users. There are four principles to be followed during the usage of this technique: Context, the research must spend sometime to verify the ongoing experience; Partnership, the transfer of knowledge happens more accurately when it is reported in real time as the user's task unfolds; Interpretation, the processing of data collected in this technique must be done in order to state what that meant for the observed used, that is why is important to double-check on-site with the user itself; Focus, the research must open itself in order to observe unfolding phenomena beyond its personal perspective and previous experiences (Holtzblatt, Beyer, 1998; Holtzblatt, Wendell & Wood, 2004). This technique is sequentially used in the phases of Observation, Understand and Define within the methodology.

Cultural Probes

Table 60 - Cultural Probes technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
		x	x							

Source: the author

It is a method to stimulate creativity, imagination and it is usually placed within the artist-designer realm. This technique employs some visual-textual materials (such as postcards, maps, journals, cameras or recording devices) in order to inspire people to respond to those provocations. The usage of diverse materials empowers people to express themselves about a particular context and start a conversation about it. It helps in fostering the emergence of patterns from a specific group and that enable the design team to explore or unveil future possibilities (Gaver, Dunne, Pacenti, 1999; Gaver, Boucher, Pennington, Walker. 2004; Herd, Bardill, Karamanoglu. 2010; Herd, Bardill, Karamanoglu. 2009; Herd, Bardill, Karamanoglu. 2009; Mattelmäki, 2006). This technique is used to deepen the knowledge of specific group of consumers in Observe, Understand phases.

Design Ethnography

Table 61 - Design Ethnography technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
		x	x	x						

Source: the author

It differentiates from traditional ethnography in the sense that it is more focused on collecting sufficient information of a time-based sample of experience observations. Design ethnography collates the results of several qualitative methods and it must understand the context of user lives, artifacts and behaviors. It helps unveils themes from the resulting materials which leads to the creation of design definitions for the generation of concepts (Malinowski, 1922; Industrial Designers Society of America, 1996; Salvador, Bell, Anderson, 1999; Sanders, 2002; Tharp, 2006; Bowling, 1997; LeCompte, Schensul, 1999; Fetterman, 1998). Empathetic and ethnographic techniques are used to collect information about stakeholder's participantion and interaction in the Observation, Understand and Define phases.

Experience Sampling Method

Table 62 - Experience Sampling Method technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
		x								

Source: the author

Experience sampling allows collecting snapshots of behaviors, interactions, thoughts, or feelings from people whom self-report in real time when signaled at random or timed intervals. Experience sampling requires that the participant record or document something specific when signaled, typically by a device alarm. Experience sampling is a form of design ethnography, because it condenses the more traditional time required for extended immersion through the collection of strategic samples of behaviors, interactions, thoughts, or feelings (Larson & Csikszentmihalyi, 1983). Within the methodology this technique evaluate trends.

Understand Phase Techniques

Cognitive Mapping

Table 63 - Cognitive Mapping technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
			x	x			x	x		

Source: the author

This method is used to expose how people thinks about a problem space and ends up being a visualization technique. It represents the connection of ideas with many income / outcome (cause and effect) associations. Its differentiation from similar techniques is that it does not require a central node (concept), images are rarely used and new nodes are created as words are spoken by participants. This way, participant's reasoning patterns come to life. It can helps agenda and strategy building, and when several maps are grouped it can also serve as a consensus-making tool (Kelly, 1955; Ackermann, Eden & Cropper, 1998; Banxia, 2015; Gomes, Rangel and Jeronimo, 2010). Within the methodology it helps in problems and solutions systematization in Understand, Define, Validate and Systematize phases.

Competitive Testing

Table 64 - Competitive Testing technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
			x						x	x

Source: the author

Comparing competition only through financial aspects (e.g. revenue) might not be enough to reveal important information, but they generally omit user's perspective (social, economic and technical) in this

equation. That is the main objective of competitive testing as it assess competition through levels of usability of their products and it does so by analyzing behavior instead of attitudes. All of the results must be recorded and compared across time, because it can give a complete picture of positioning within a specific industry. This is especially important when defining differentiation or segmentation aspects of a product or service from its competition. That is why, when employing this technique, researches must be aware of not biasing the process by stating the name of the company or its competitors (Kuniavsky, 2003; Nielsen, 2004; Nielsen, 2011). This technique is useful when operationalizing group dynamics for benchmarking within Understand, Test and Dialogue phases.

Personas

Table 65 - Personas technique utilization

Involvement		Inspiration		Ideation			Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue	
			x	x			x				

Source: the author

Personas consolidate archetypal descriptions of user behavior patterns into representative profiles, to humanize design focus, test scenarios, and aid design communication. Personas are typically presented in page-length or shorter descriptions, providing a name for the person, a photograph (use stock photography to avoid connection to a real identity) or sketch, and a narrative story describing in detail key aspects of his or her life situation, goals, and behaviors relevant to the design inquiry (Cooper, 2003, 2004; Djajadiningrat, Gaver & Frens, 2000). Within the methodology this technique is used in the Understand and Define phases to understand and get to know the target, and in the Validate phase to do targeting.

Picture Cards

Table 66 - Picture Cards technique utilization

Involvement		Inspiration		Ideation			Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue	
			x		x						

Source: the author

Picture cards are an artifact-based interview method, providing an anchor around which participant conversations can take place. As with guided tours, people are generally put at ease when interviews are facilitated through concrete, visual reference points. Picture cards as a methodology stem from activity theory, which holds that, "the human mind is the product of our interaction with people and artifacts in the context of everyday activity (Kaptelinin, Victor, & Nardi, 2006). Within the methodology this technique is used through an image and trend cards to stimulate creativity and ideas generation in Understand and Ideate phases.

Speed Dating

Table 67 - Speed Dating technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
			x		x					

Source: the author

Comparing multiple design concepts in quick succession and learn how people react while taking into account existing contextual and social factors. Speed dating as a research method is inspired by the framework of its dating-scene to rapidly "speed date" design opportunities with potential users. The power of speed dating lies in exposing people to future design ideas via storyboards and simulated environments before any expensive technical prototypes are built. An overview of the speed dating process is as follows:

- *Conduct contextual field research*, using interviews, role-playing, artifact analysis, directed storytelling, diary studies, and cultural probes to understand the people for whom you are designing.
- *Create storyboards for each scenario*. Design storyboards to elicit an emotional, empathic reaction to the characters so that participants can easily identify with them.
- "*Speed date" storyboards in a session*. Storyboards that should be presented to a group of people in serial fashion, and then followed by a focus question to help design teams understand what is in the users' minds.
- *Reflect and discuss*. Refocus conversations on the needs that were expressed in both the field research and the storyboard sessions.
- *Construct a simulated environment*. User enactments in a simulated space allow people to act out a role from the revised scenarios.

The method can uncover risk factors across a series of related enactments, and focus design teams' efforts on understanding user needs before spending time and effort vetting and building expensive technological solutions (Davidoff, Lee, Dey & Zimmerman, 2007; Davidoff, Lee,, Yiu, Zimmerman & Dey, 2007; Odom, Zimmerman & Forlizzi, 2011). Within the methodology this technique creates rotating thematic islands for ideation and information gathering in Understand and Ideate phases.

Define Phase Techniques

Usability Report

Table 68 - Usability Report technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
				x				x		

Source: the author

The usability report helps deciding whether a product is usable enough to release, or needs revision and further testing with more participants. The goal is to clearly outline which parts of the user interface should be fixed or improved. Usability reports observe the usability tests as they occur, discuss observations and then summarize decision. Within the methodology Usability Reports deliver intermediary reports with information about each phase and are mainly used in Define and Systematize phases.

Ideate Phase Techniques

Cases Studies

Table 69 - Case Studies technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
					x	x	x	x		

Source: the author

Case study is a form of exploratory research, which is developed to make sense of existing phenomena or effects created by new vectors of change – programs or innovations. It works in a detailed way in diving in the context of a single instance or related instances, which can be individuals, organization, events or processes. One of its major characteristics is that it does not look for representative instances, but as a more inductive method, it embraces outliers and recognizes

individuality. While single cases may not be enough to support (or reject) hypothesis, it can serve as some theory building. This in-depth approach compensates the absence of the ability to produce wider generalizations (Yin, 2002; Robson, 2002; Sommer & Sommer, 2002). It is used within in order to report on good practices aiding solutions ideation and applying ideas within actions in Ideate, Experiment, Validate and Systematize phases.

Design Charrete

Table 70 - Design Charrete technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
					x	x				

Source: the author

A design charette stands for a workshop that creates collaborative opportunity for designers and other stakeholders that allows ideation and cross-pollination of design solutions. It goes by the standards of natural selection functioning where the most prevailing qualities are the ones to keep for future iterations. The team must acknowledge that the goal of this technique is to generate and discussion and comparison of many solutions, but it occurs on top of very low-fidelity concepts of prototypes, which must ideally improve at each iNteration (McGrew, 2001; Nielsen, Faber, 1996; Tohidi, Baecker, Sellen, 2006; Nielsen & Dusurvire, 1993). It is a technique used for cross-pollination and formation of thematic ideation islands during Ideate and Experiment stages.

Storyboards

Table 71 - StoryBoards technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
					x	x		x		

Source: the author

Storyboards provide visual narratives that generate empathy and communicate the context. Storyboarding visually capture the social, environmental, and technical factors that shape the context of how, where, and why people are engaged. Illustrates contextually rich narratives storyboards are used to build empathy. (Truong, Gillian & Gregory, 2006; McLoud, 1994; Vertelney & Gayle, 1990). Within the

methodology this method helps to evaluate and provide support to the creative techniques and support their visualization in the Ideate, Experiment and Systematize phases.

Experiment Phase Techniques

Business Origami

Table 72 - Business Origami technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
						x		x		

Source: the author

Early in the design process this method enables multiple stakeholders to discuss current and prototype future business scenarios. It does so by physical modeling through paper cut tokens that represent agents (actors, artifacts, environments and technologies) and whiteboards for stages to represent interaction spaces. The main objective is to visualize value exchange between these components across time, it can be drawn as arrows in the whiteboard. Although the documentation of the final result is important, the main deliverable is the conversational process of building the scenario model. (McMullin, 2015). It is used for materialization and conceptual visualization of final product and services in Experiment and Systematize phases.

Prototyping

Table 73 - Prototyping technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
						x		x	x	

Source: the author

Prototyping is the tangible creation of artifacts at various levels of resolution, for development and testing of ideas within design teams and with clients and users. Is the physical realization of product or interface concepts is a critical feature of the design process, representing the creative translation of research and ideation into tangible form, for essential testing of concepts by the designer, design team, clients, and potential users (Houde & Hill, 1997; Lidwell, Holden & Butler, 2010; Warfel, 2009). Within the

methodology this technique is used to create Mock-up to receive ideas and material to create a prototyping manual in Test phase.

Weighted Matrix

Table 74 - Weighted Matix technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
						x	x		x	

Source: the author

Weighted matrix helps identify and prioritize the most promising opportunities. Can be used as a method to help you manage a growing number of potential design ideas ranking potential design opportunities against key success criteria. The “criteria” represents the primary measures of product success rated on a scale and “opportunities” represents the design ideas that elicit the most serious interest from the team. Together, the matrix can be used to bring the number of ideas down to a more manageable number of about a dozen. Its power is in the way it provides a structured process for conversations to happen on the team, and shifting decision- making to a process that is grounded in success criteria, not personal opinions (Cagan & Vogel, 2002). Within the methodology this methods is used to measure indicators for decision-making process in Experiment, Validate and Test phases.

Validate Phase Techniques

A/B Testing

Table 75 - A/B Testing technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
							x		x	

Source: the author

A/B testing is a comparative method used in order to compare two versions of the same artifact. This is done by randomly “treating” users with each version until a certain sample number is reached, at the end, they are compared in terms of the intended business goal (Nielsen, 2005; Kahavi et al., 2007). This method is employed within the methodology in order to comparatively evaluate ideas and final solutions in Validate and Test phases.

Evaluative Research

Table 76 - Evaluative Research technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
							x		x	

Source: the author

Evaluative research involves the testing of prototypes, products or interfaces by real potential users of a system in design development. Evaluative or evaluation research attempts to gauge human expectations against the designed artifact in question, determining whether something is useful, usable, and desirable. Evaluation research is ideally iterative, based on feedback from potential users in cyclical rounds of concept and prototype development to refine product and interface details. Should never be reserved only for final product release, when design changes are potentially complicated and expensive (Chi & Suh, 2008). Within the methodology this technique validate and test the final ideas with consumer groups in Validate and Test phases.

Value Opportunity Analysis

Table 77 - Value Opportunity Analysis technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
							x	x		

Source: the author

Value opportunity analysis maps the extent to which a product's aspirational qualities align to people's idealized lifestyle or fantasy version of themselves. A technique that can be used to identify the aspirational attributes in a product or service is the Value Opportunity Analysis (VOA). A VOA provides you with a list of value-based criteria, or value opportunities considering the degree to which a product connects with an audience. The seven value opportunities (and their attributes) are: Emotion: adventure, independence, security, sensuality, confidence, power; Aesthetics: visual, auditory, tactile, olfactory, taste; Identity: point in time, sense of place, personality; Impact: social, environmental; Ergonomics: comfort, safety, ease of use; Core Technology: reliable, enabling and Quality: craftsmanship, durability. The VOA can be used to help the team consider the results from multiple angles: Competitive Review.

One of the best uses for the VOA is that it can be used to measure how your product stacks up to a competitor's product in terms of perceived value to the audience; Market Analysis. Use VOAs to assess the products in your category that are wild successes. Then, assess the failed products. What can you learn from them? Make recommendations that help you build off others' past successes, and avoid repeating the missteps and Multiple Personas. VOAs can be applied to a product from the points of view of several personas. The analysis can help you identify whether different user needs are being met. A VOA provides an opportunity to do the ratings and generate discussion among members (Cagan & Vogel, 2002). Within the methodology Value Opportunity Analysis is used to analyze the end value of ideas, applicability and action in Validate and Systemize phases.

Systemize Phase Techniques

Scenario Description Swimlanes

Table 78 - Scenario Description Swimlanes technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
								x		

Source: the author

Scenario description swimlanes are deliverables that visualize the activities of multiple actors in a flow of events and prove that a holistic perspective is greater than the sum of its parts. It can be through: Storyboard lane: The top lane is the most visually powerful element of the document, and captures the events in a user story in a visual way; User Experience lane: Using a flowchart of boxes and arrows, this lane depicts the story shown in the storyboard lane with more detail and insight into the process of the user experience; Business Process lane: The business logic that supports the user story and user experience is flowcharted in the third lane and Tools and Systems lane: The back-end technology that is involved to support the user actions and business goals is documented here, and is provided by technical team members such as engineers and database administrators. Within the methodology this technique is used to think from a holistic scope the innovation challenge.

Test Phase Techniques

Critical Incident Technique

Table 79 - Critical Incident Technique utilization

Involvement		Inspiration		Ideation		Integration		Implementation		Interaction
Diagnostic	Preparation	Observation	Understand	Define	Ideate	Experiment	Validate	Systematize	Test	Dialogue
								x		

Source: the author

This technique tries to make use of situations where you cannot predict the actual (good or bad) outcome of actions, it does so by separately analyzing them and making inferences about these events. This technique analyses data so that findings can help inference about explanations for positive and negative incidents, the intent is to help creating recommendations to future improvements. The structure for identification of incidents is: cause (sequence of events), actions (behaviors during the incident), sentiment (feeling of the user), incident outcome (behavior after the incident) and ideal outcome (intended outcome by changing behaviors) (Flanagan, 1954; Urquhar et al., 2003; Serenko, 2006; Ryan, Bernard, 2000; Serenko, 2010). This technique is used within the methodology to test solutions with users in real life context for obtaining feedback from them.

LinkUp Model Techniques

Crowdsourcing

This technique can be used when there is a need for a great amount of data within a project. This quantitative or qualitative data is usually obtained through (micro) tasks assigned to volunteers, which are users or testers of a specific prototype. After the completion of the task, they receive some sort of compensation (monetary or not). In defining the microtask to be completed, it must be carefully designed not be gamed by users and be simple enough in order to foster participation. There are some benefits and drawbacks in employing this technique, at the same time the research team can obtain statistically significant large sample for generalizable results, it is usually unable to collect much information about demographic of the testers (Kittur, Chi, Suh, 2007; Howe, 2009; Quinn, Bederson, 2009). Within the methodology is applied through the collaborative platform LinkUp.

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Contactos:
Universidade de Évora
Instituto de Investigação e Formação Avançada - IIFA
Palácio do Vimioso | Largo Marquês de Marialva, Apart. 94
7002-554 Évora | Portugal
Tel: (+351) 266 706 581
Fax: (+351) 266 744 677
email: iifa@uevora.pt